

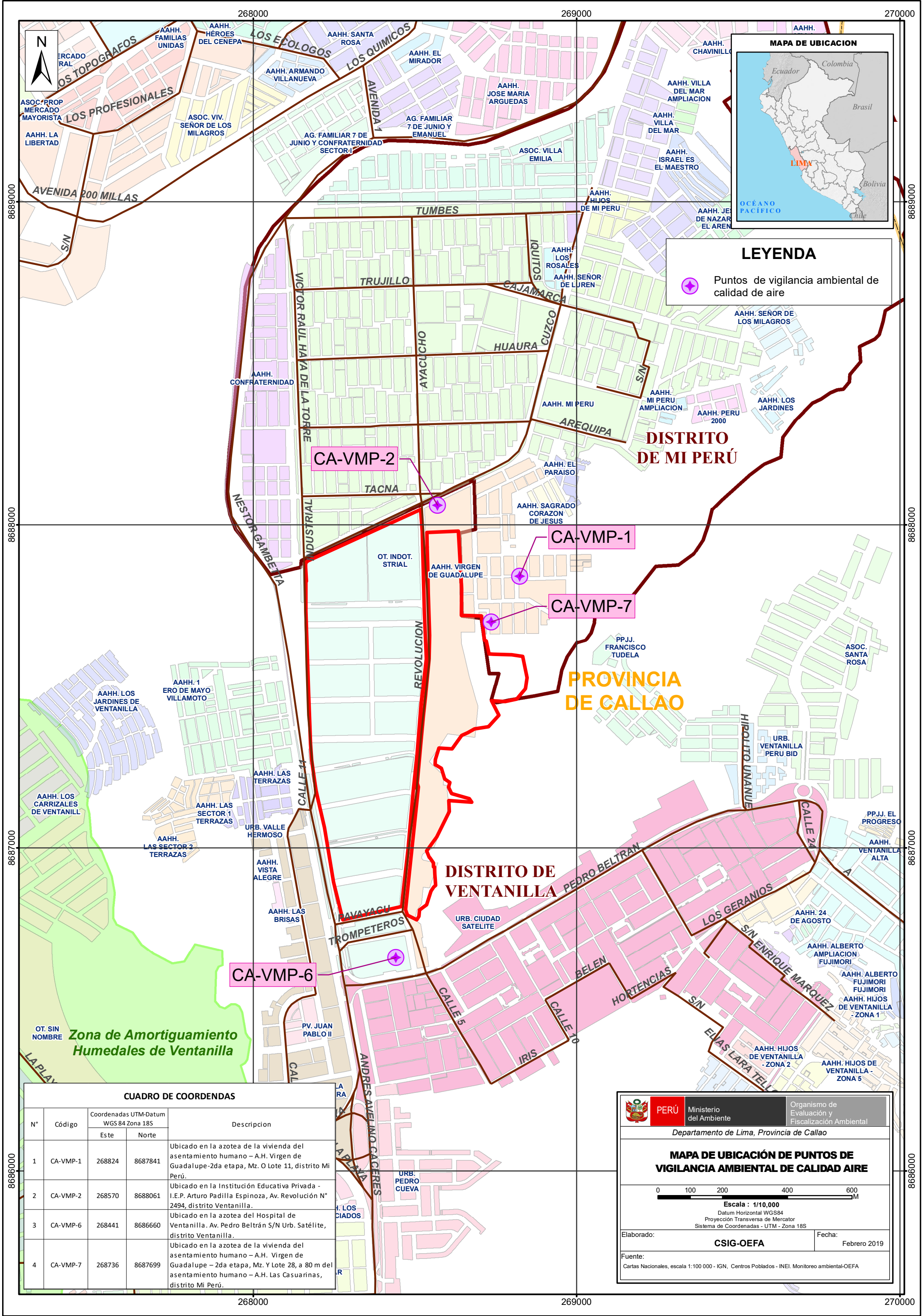
ANEXOS

ANEXO N° 1



Organismo
de Evaluación
y Fiscalización
Ambiental

Mapa de ubicación de las estaciones de monitoreo de calidad de aire



LEYENDA

Puntos de vigilancia ambiental de calidad de aire

0006988
0008988
0007898
0009898

268000 269000 270000

| CUADRO DE COORDENADAS | | | | |
|-----------------------|----------|---------------------------------------|---------|--|
| N° | Código | Coordenadas UTM-Datum WGS 84 Zona 18S | | Descripcion |
| | | Este | Norte | |
| 1 | CA-VMP-1 | 268824 | 8687841 | Ubicado en la azotea de la vivienda del asentamiento humano - A.H. Virgen de Guadalupe-2da etapa, Mz. O Lote 11, distrito Mi Perú. |
| 2 | CA-VMP-2 | 268570 | 8688061 | Ubicado en la Institución Educativa Privada - I.E.P. Arturo Padilla Espinoza, Av. Revolución N° 2494, distrito Ventanilla. |
| 3 | CA-VMP-6 | 268441 | 8686660 | Ubicado en la azotea del Hospital de Ventanilla. Av. Pedro Beltrán S/N Urb. Satélite, distrito Ventanilla. |
| 4 | CA-VMP-7 | 268736 | 8687699 | Ubicado en la azotea de la vivienda del asentamiento humano - A.H. Virgen de Guadalupe - 2da etapa, Mz. Y Lote 28, a 80 m del asentamiento humano - A.H. Las Casuarinas, distrito Mi Perú. |

PERÚ Ministerio del Ambiente Organismo de Evaluación y Fiscalización Ambiental
 Departamento de Lima, Provincia de Callao

MAPA DE UBICACIÓN DE PUNTOS DE VIGILANCIA AMBIENTAL DE CALIDAD AIRE

0 100 200 400 600 M
 Escala : 1/10,000
 Datum Horizontal WGS84
 Proyección Transversa de Mercator
 Sistema de Coordenadas - UTM - Zona 18S

Elaborado: **CSIG-OEFA** Fecha: Febrero 2019
 Fuente: Cartas Nacionales, escala 1:100 000 - IGN, Centros Poblados - INEI, Monitoreo ambiental-OEFA



268000 269000 270000

ANEXO N° 2



Organismo
de Evaluación
y Fiscalización
Ambiental

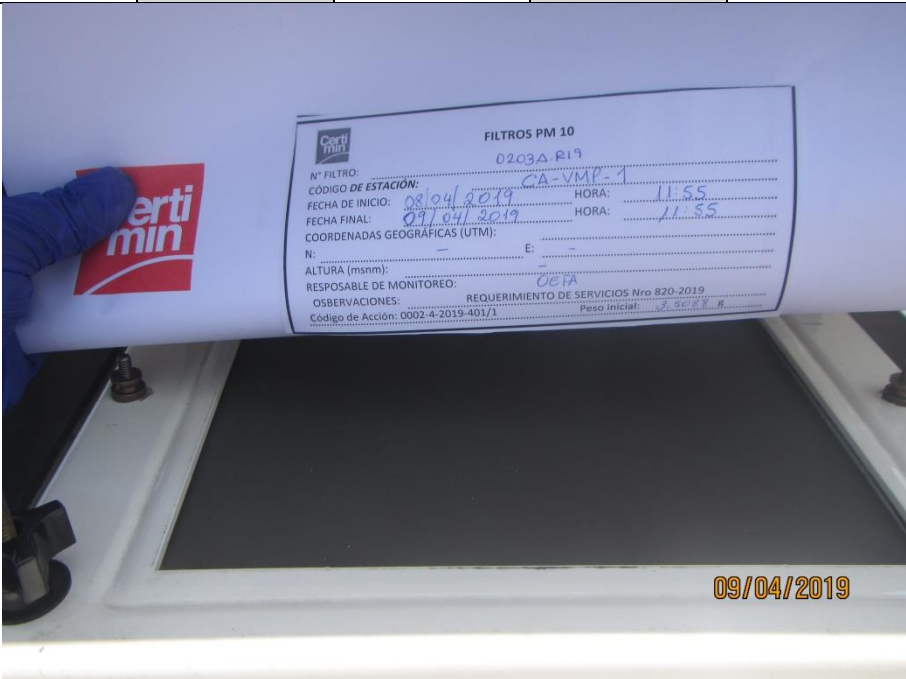
Ficha Fotográfica

| Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú | | | | | |
|--|---|-----------|-----------------------------------|--------------|------|
| CUE: 2019-02-0013 | | | CÓDIGO DE ACCIÓN: 0002-4-2019-401 | | |
| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
| Fotografía 1 CA-VMP-1 |  | | | | |
| Fecha: 26/04/2019 | | | | | |
| Hora: 12:07 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268824 | | | | | |
| Norte (m): 8687841 | | | | | |
| Altitud (m s. n. m.): 106 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | Azotea de vivienda ubicada en el Asentamiento Humano Virgen De Guadalupe, Mz. O Lote 11, distrito Mi Perú. | | | | |
| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
| Fotografía 2 CA-VMP-1 |  | | | | |
| Fecha: 08/04/2019 | | | | | |
| Hora: 12:05 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268824 | | | | | |
| Norte (m): 8687841 | | | | | |
| Altitud (m s. n. m.): 106 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | Equipos de monitoreo ambiental colocados en la azotea de vivienda ubicada en el Asentamiento Humano Virgen de Guadalupe, Mz. O Lote 11, distrito Mi Perú. | | | | |


Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE

CUE: 2019-02-0013

CÓDIGO DE ACCIÓN: 0002-4-2019-401

| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|---|---|-----------|---------------------------|--------------|------|
| Fotografía 3 CA-VMP-1 |  | | | | |
| Fecha: 09/04/2019 | | | | | |
| Hora: 12:00 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268824 | | | | | |
| Norte (m): 8687841 | | | | | |
| Altitud (m s. n. m.): 106 | | | | | |
| Precisión: ± 3 m | | | | | |

Descripción: Filtro de PM₁₀ colocado el 8 de abril de 2019 y retirado el 9 de abril de 2019, en el punto CA-VMP-1 ubicado en el Asentamiento Humano Virgen de Guadalupe, Mz. O Lote 11, distrito Mi Perú.


| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|---|---|-----------|---------------------------|--------------|------|
| Fotografía 4 CA-VMP-1 |  | | | | |
| Fecha: 09/04/2019 | | | | | |
| Hora: 12:02 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268824 | | | | | |
| Norte (m): 8687841 | | | | | |
| Altitud (m s. n. m.): 106 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | Filtro de PM _{2.5} colocado el 8 de abril de 2019 y retirado el 9 de abril de 2019, en el punto CA-VMP-1 ubicado en el Asentamiento Humano Virgen de Guadalupe, Mz. O Lote 11, distrito Mi Perú. | | | | |


| Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú AIRE | | | | | |
|--|------------|--|---------------------------|--------------|------|
| CUE: 2019-02-0013 | | CÓDIGO DE ACCIÓN: 0002-4-2019-401 | | | |
| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
| Fotografía 5 CA-VMP-2 | | | | | |
| Fecha: 26/04/2019 | | | | | |
| Hora: 12:43 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268570 | | | | | |
| Norte (m): 8688061 | | | | | |
| Altitud (m s. n. m.): 80 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | | Institución Educativa Privada Arturo Padilla Espinoza, distrito Ventanilla. | | | |
| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
| Fotografía 6 CA-VMP-2 | | | | | |
| Fecha: 17/04/2019 | | | | | |
| Hora: 11:43 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268570 | | | | | |
| Norte (m): 8688061 | | | | | |
| Altitud (m s. n. m.): 80 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | | Equipos de monitoreo ambiental ubicado en la Institución Educativa Privada Arturo Padilla Espinoza, distrito Ventanilla. | | | |

Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE

CUE: 2019-02-0013

CÓDIGO DE ACCIÓN: 0002-4-2019-401


| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|---|------------|-----------|---------------------------|--------------|------|
| Fotografía 7 CA-VMP-2 | | | | | |
| Fecha: 26/04/2019 | | | | | |
| Hora: 12:43 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268570 | | | | | |
| Norte (m): 8688061 | | | | | |
| Altitud (m s. n. m.): 80 | | | | | |
| Precisión: ± 3 m | | | | | |
|  | | | | | |
| Descripción: Equipo analizador automático de gases (SO ₂ y H ₂ S) instalado en la Institución Educativa Privada Arturo Padilla Espinoza, distrito de Ventanilla. | | | | | |


| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|--|------------|-----------|---------------------------|--------------|------|
| Fotografía 8 CA-VMP-2 | | | | | |
| Fecha: 25/04/2019 | | | | | |
| Hora: 11:47 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268570 | | | | | |
| Norte (m): 8688061 | | | | | |
| Altitud (m s. n. m.): 80 | | | | | |
| Precisión: ± 3 m | | | | | |
|  | | | | | |
| Descripción: Vista del asentamiento humano Virgen de Guadalupe desde la Institución Educativa Privada Arturo Padilla Espinoza,. | | | | | |

Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE

CUE: 2019-02-0013

CÓDIGO DE ACCIÓN: 0002-4-2019-401


| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|---|------------|-----------|---------------------------|--------------|------|
| Fotografía 9 CA-VMP-2 | | | | | |
| Fecha: 09/04/2019 | | | | | |
| Hora: 12:34 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268570 | | | | | |
| Norte (m): 8688061 | | | | | |
| Altitud (m s. n. m.): 80 | | | | | |
| Precisión: ± 3 m | | | | | |
|  | | | | | |
| Descripción: Filtro de PM ₁₀ colocado el 8 de abril de 2019 y retirado el 9 de abril de 2019, en el punto CA-VMP-2 ubicado en la Institución Educativa Privada Arturo Padilla Espinoza. | | | | | |


| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|---|------------|-----------|---------------------------|--------------|------|
| Fotografía 10 CA-VMP-2 | | | | | |
| Fecha: 17/04/2019 | | | | | |
| Hora: 11:28 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268570 | | | | | |
| Norte (m): 8688061 | | | | | |
| Altitud (m s. n. m.): 80 | | | | | |
| Precisión: ± 3 m | | | | | |
|  | | | | | |
| Descripción: Filtro de PM _{2.5} colocado el 16 de abril de 2019 y retirado el 17 de abril 2019, en el punto CA-VMP-2 ubicado en la Institución Educativa Privada Arturo Padilla Espinoza. | | | | | |

Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE

CUE: 2019-02-0013

CÓDIGO DE ACCIÓN: 0002-4-2019-401

| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|---|------------|---|---------------------------|--------------|------|
| Fotografía 11 CA-VMP-6 | |  | | | |
| Fecha: 26/04/2019 | | | | | |
| Hora: 10:41 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268441 | | | | | |
| Norte (m): 8686660 | | | | | |
| Altitud (m s. n. m.): 50 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | | Azotea del Hospital de Ventanilla, distrito Ventanilla. | | | |

| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|---|------------|---|---------------------------|--------------|------|
| Fotografía 12 CA-VMP-6 | |  | | | |
| Fecha: 09/04/2019 | | | | | |
| Hora: 11:05 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268441 | | | | | |
| Norte (m): 8686660 | | | | | |
| Altitud (m s. n. m.): 50 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | | Equipos de monitoreo ambiental colocados en la azotea del Hospital de Ventanilla, localizado en el distrito Ventanilla. | | | |

Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE

CUE: 2019-02-0013

CÓDIGO DE ACCIÓN: 0002-4-2019-401

| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|---|------------|-----------|---------------------------|--------------|------|
| Fotografía 13 CA-VMP-6 | | | | | |
| Fecha: 09/04/2019 | | | | | |
| Hora: 11:07 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268441 | | | | | |
| Norte (m): 8686660 | | | | | |
| Altitud (m s. n. m.): 50 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | | | | | |
| Filtro de PM ₁₀ colocado el 8 de abril de 2019 y retirado el 9 de abril de 2019 en el punto CA-VMP-6 ubicado en el Hospital de Ventanilla. | | | | | |




| Distrito | Ventanilla | Provincia | Constitucional del Callao | Departamento | Lima |
|--|------------|-----------|---------------------------|--------------|------|
| Fotografía 14 CA-VMP-6 | | | | | |
| Fecha: 17/04/2019 | | | | | |
| Hora: 10:43 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268441 | | | | | |
| Norte (m): 8686660 | | | | | |
| Altitud (m s. n. m.): 50 | | | | | |
| Precisión: ± 3 m | | | | | |
| Descripción: | | | | | |
| Filtro de PM ₁₀ colocado el 16 de abril 2019 y retirado el 17 de abril de 2019 en el punto CA-VMP-6 ubicado en el Hospital de Ventanilla. | | | | | |




**Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE**

CUE: 2019-02-0013

CÓDIGO DE ACCIÓN: 0002-4-2019-401

| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|---|---------|-----------|---------------------------|--------------|------|
| Fotografía 15 CA-VMP-7 | | | | | |
| Fecha: 26/04/2019 | | | | | |
| Hora: 11:23 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268736 | | | | | |
| Norte (m): 8687699 | | | | | |
| Altitud (m s. n. m.): 86 | | | | | |
| Precisión: ± 3 m | | | | | |
|  | | | | | |

Descripción: Azotea de vivienda ubicada en el Asentamiento Humano Virgen de Guadalupe Mz. Y Lote 28, distrito de Mi Perú.

| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|--|---------|-----------|---------------------------|--------------|------|
| Fotografía 16 CA-VMP-7 | | | | | |
| Fecha: 08/04/2019 | | | | | |
| Hora: 11:20 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268736 | | | | | |
| Norte (m): 8687699 | | | | | |
| Altitud (m s. n. m.): 86 | | | | | |
| Precisión: ± 3 m | | | | | |
|  | | | | | |


Descripción: Equipo de monitoreo ambiental colocado en la azotea de la vivienda ubicada en el Asentamiento Humano Mz. Y Lote 28, distrito de Mi Perú.

Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE

CUE: 2019-02-0013


CÓDIGO DE ACCIÓN: 0002-4-2019-401

| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|---|---------|-----------|---------------------------|--------------|------|
| Fotografía 17 CA-VMP-7 | | | | | |
| Fecha: 11/04/2019 | | | | | |
| Hora: 10:23 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268736 | | | | | |
| Norte (m): 8687699 | | | | | |
| Altitud (m s. n. m.): 86 | | | | | |
| Precisión: ± 3 m | | | | | |



Descripción: Vista panorámica frente a la vivienda ubicada en el Asentamiento Humano Mz. Y Lote 28, distrito de Mi Perú de la zona industrial del distrito de Ventanilla

| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|---|---------|-----------|---------------------------|--------------|------|
| Fotografía 18 CA-VMP-7 | | | | | |
| Fecha: 09/04/2019 | | | | | |
| Hora: 11:26 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268736 | | | | | |
| Norte (m): 8687699 | | | | | |
| Altitud (m s. n. m.): 86 | | | | | |
| Precisión: ± 3 m | | | | | |





Descripción: Filtro de PM₁₀ colocado el 8 de abril de 2019 y retirado el 9 de abril de 2019 en el punto CA-VMP-7 ubicado en el Asentamiento Humano Mz. Y Lote 28, distrito de Mi Perú.

Vigilancia ambiental en el ámbito de la zona industrial de Ventanilla y distrito Mi Perú
AIRE

CUE: 2019-02-0013

CÓDIGO DE ACCIÓN: 0002-4-2019-401

| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|---|---|-----------|---------------------------|--------------|------|
| Fotografía 19 CA-VMP-7 |  | | | | |
| Fecha: 11/04/2019 | | | | | |
| Hora: 10:22 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268736 | | | | | |
| Norte (m): 8687699 | | | | | |
| Altitud (m s. n. m.): 86 | | | | | |
| Precisión: ± 3 m | <p>Descripción: Equipo muestreador de alto volumen instalado por OEFA en la vivienda ubicada en el Asentamiento Humano Mz. Y Lote 28 (casa amarilla). A pocos metros se visualiza otro equipo instalado en una vivienda (proveniente de alguna empresa de la zona industrial), distrito Mi Perú.</p> | | | | |

| Distrito | Mi Perú | Provincia | Constitucional del Callao | Departamento | Lima |
|---|---|-----------|---------------------------|--------------|------|
| Fotografía 20 CA-VMP-7 |  | | | | |
| Fecha: 17/04/2019 | | | | | |
| Hora: 11:07 | | | | | |
| Coordenadas UTM -WGS 84 – Zona 18L | | | | | |
| Este (m): 268736 | | | | | |
| Norte (m): 8687699 | | | | | |
| Altitud (m s. n. m.): 86 | | | | | |
| Precisión: ± 3 m | <p>Descripción: Vista panorámica frente a la vivienda ubicada en el Asentamiento Humano Mz. Y Lote 28, distrito de Mi Perú de la zona industrial del distrito de Ventanilla.</p> | | | | |

ANEXO N° 3



Organismo
de Evaluación
y Fiscalización
Ambiental

**Datos de campo,
cálculos de aire,
data meteorológica
y resultados de
laboratorio**

ANEXO N° 3.1



Organismo
de Evaluación
y Fiscalización
Ambiental

Datos de campo

DATOS DE CAMPO DE AIRE

EXPEDIENTE: _____
 CUE: 2019-02-0013 CÓDIGO DE ACCIÓN: 0002-4-2019-401
 PUNTO DE MUESTREO: CA-VMP-1 FECHA DE INICIO: 8/04/19 HORA DE INICIO: 11:55 Hrs.
 DESCRIPCIÓN: Vivienda del A.H Virgen de Guadalupe Nz O Lote 11, Mi Peru
 COORDENADAS UTM WGS 84 ZONA: 18L ESTE: 268824 NORTE: 8687841 ALTITUD (m s.n.m): 106 PRECISIÓN: ±3

| ALTO VOLUMEN : MATERIAL PARTICULADO <input type="checkbox"/> PM _{2.5} <input checked="" type="checkbox"/> PM ₁₀ | | | | | | | | |
|---|-----------------------------|--------------|---------------------------|--------------|---------------|-------|-------------------------------|-------|
| N.° de medición | Periodo de medición inicial | | Periodo de medición final | | Flujo (L/min) | | Presión (in H ₂ O) | |
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | Inicial | Final | Inicial | Final |
| 1 | 8/04/19 | 11:55 | 9/04/19 | 11:55 | | | 16,4 | 18,8 |
| 2 | 11/04/19 | 10:39 | 12/04/19 | 10:39 | | | 15,8 | 16,8 |
| 3 | 16/04/19 | 11:10 | 17/04/19 | 11:14 | | | 15,8 | 16,8 |
| 4 | 24/04/19 | 11:13 | 25/04/19 | 11:03 | | | 14,7 | 15,7 |
| 5 | 25/04/19 | 11:15 | 26/04/19 | 11:38 | | | 16,0 | 16,0 |
| 6 | 26/04/19 | 12:04 | 27/04/19 | 12:30 | | | 15,8 | 16,3 |

| BAJO VOLUMEN: MATERIAL PARTICULADO <input checked="" type="checkbox"/> PM _{2.5} <input type="checkbox"/> PM ₁₀ | | | | | | | |
|--|-----------------------------|--------------|---------------------------|--------------|---------|---------|-------------|
| N.° de medición | Periodo de medición inicial | | Periodo de medición final | | Volumen | Presión | Temperatura |
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | | | |
| 1 | 8/04/19 | 11:55 | 9/04/19 | 11:55 | 24,04 | 755 | 22,8 |
| 2 | 11/04/19 | 10:39 | 12/04/19 | 10:39 | 24,04 | 754 | 23,5 |
| 3 | 16/04/19 | 11:10 | 17/04/19 | 11:10 | 24,05 | 754 | 22,9 |
| 4 | 24/04/19 | 11:13 | 25/04/19 | 11:03 | 23,89 | 755 | 23,1 |
| 5 | 25/04/19 | 11:15 | 26/04/19 | 11:15 | 24,05 | 755 | 22,9 |
| 6 | 26/04/19 | 12:04 | 27/04/19 | 12:04 | 24,05 | 754 | 22,2 |

| DESCRIPCIÓN DE EQUIPOS EMPLEADOS | | | | |
|----------------------------------|--|-------------------|--------------|-------------|
| N.° | EQUIPOS | MARCA | MODELO | SERIE |
| 1 | Muestreador de Material Particulado < 10 micras | THERMO SCIENTIFIC | - | 1547505 |
| 2 | Muestreador de Material Particulado < 2,5 micras | BGI | PQ200 | 2087 |
| 3 | Motor Venturi | THERMO SCIENTIFIC | HI VOL | P9307X |
| 4 | Manómetro | - | - | - |
| 5 | Estación meteorológica | DAVIS | VANTAGE PRO2 | BB171204036 |
| 6 | Otros: MANÓMETRO DE AGUA | DWYER | - | - |

OBSERVACIONES GENERALES

| | | | |
|-----------------------------------|--------------------------|-------|--|
| Responsable de grupo de trabajo | <u>Mariella Atala A.</u> | Firma | |
| Responsable de la toma de muestra | <u>Cindy Alfaro G.</u> | Firma | |

DATOS DE CAMPO DE AIRE

EXPEDIENTE:

CUE: 2019-02-0013 CÓDIGO DE ACCIÓN: 0002-4-2019-401

PUNTO DE MUESTREO: CA-VMP-2 FECHA DE INICIO: 8/04/19 HORA DE INICIO: 12:30 Hrs.

DESCRIPCIÓN: I.E.P. Arturo Padilla Espinoza, Av. Revolución N° 2494, Ventanilla

COORDENADAS UTM WGS 84: ZONA: 18L ESTE: 268570 NORTE: 8688061 ALTITUD (m s.n.m): 80 PRECISIÓN: ±3

| ALTO VOLUMEN: MATERIAL PARTICULADO <input type="checkbox"/> PM _{2,5} <input checked="" type="checkbox"/> PM ₁₀ | | | | | | | | |
|--|-----------------------------|--------------|---------------------------|--------------|---------------|-------|-------------------------------|-------|
| N.º de medición | Periodo de medición inicial | | Periodo de medición final | | Flujo (L/min) | | Presión (in H ₂ O) | |
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | Inicial | Final | Inicial | Final |
| 1 | 8/04/19 | 12:30 | 9/04/19 | 12:30 | / | | 15,0 | 17,3 |
| 2 | 11/04/19 | 10:53 | 12/04/19 | 10:53 | | | 15,0 | 15,4 |
| 3 | 16/04/19 | 11:25 | 17/04/19 | 11:30 | | | 15,3 | 16,1 |
| 4 | 24/04/19 | 11:28 | 25/04/19 | 11:28 | | | 15,0 | 15,6 |
| 5 | 25/04/19 | 11:38 | 26/04/19 | 12:18 | | | 15,3 | 15,9 |
| 6 | 26/04/19 | 12:38 | 26/04/19 | 17:38* | | | 15,3 | 15,5 |

| BAJO VOLUMEN: MATERIAL PARTICULADO <input checked="" type="checkbox"/> PM _{2,5} <input type="checkbox"/> PM ₁₀ | | | | | | | |
|--|-----------------------------|--------------|---------------------------|--------------|---------|---------|-------------|
| N.º de medición | Periodo de medición inicial | | Periodo de medición final | | Volumen | Presión | Temperatura |
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | | | |
| 1 | 8/04/19 | 12:30 | 9/04/19 | 12:30 | 24,03 | 749 | 22,9 |
| 2 | 11/04/19 | 10:53 | 12/04/19 | 10:53 | 24,03 | 749 | 22,8 |
| 3 | 16/04/19 | 11:25 | 17/04/19 | 11:25 | 24,03 | 750 | 22,6 |
| 4 | 24/04/19 | 11:28 | 25/04/19 | 11:28 | 24,03 | 750 | 22,4 |
| 5 | 25/04/19 | 11:38 | 26/04/19 | 11:38 | 24,03 | 750 | 22,1 |
| 6 | 26/04/19 | 12:38 | 27/04/19 | 12:38 | 24,03 | 749 | 21,3 |

| DESCRIPCIÓN DE EQUIPOS EMPLEADOS | | | | |
|----------------------------------|--|--------------------|--------|---------|
| N.º | EQUIPOS | MARCA | MODELO | SERIE |
| 1 | Muestreador de Material Particulado < 10 micras | THEIRMO SCIENTIFIC | - | 1542905 |
| 2 | Muestreador de Material Particulado < 2,5 micras | BGI | PQ 200 | 2085 |
| 3 | Motor Venturi | THEIRMO SCIENTIFIC | HI VOL | P9309 X |
| 4 | Manómetro | - | - | - |
| 5 | Estación meteorológica | - | - | - |
| 6 | Otros: MANÓMETRO PEAGWA | DWYER | - | - |

OBSERVACIONES GENERALES

*El equipo solo monitoreó 5 Horas, debido a un corte de energía eléctrica. (26/04/2019)

| | | | |
|-----------------------------------|--------------------------|-------|--|
| Responsable de grupo de trabajo | <u>Mariella Afala A.</u> | Firma | |
| Responsable de la toma de muestra | <u>Cindy Alfaro G.</u> | Firma | |

DATOS DE CAMPO DE AIRE

EXPEDIENTE: _____

CUE: 2019-02-0013 CÓDIGO DE ACCIÓN: 0002-4-2019-401

PUNTO DE MUESTREO: CA-VMP-6 FECHA DE INICIO: 8/04/19 HORA DE INICIO: 10:58 Hrs.

DESCRIPCIÓN: Hospital de Ventanilla, Av. Pedro Beltran s/n, Ventanilla

COORDENADAS UTM WGS 84 ZONA: 18L ESTE: 268441 NORTE: 8686660 ALTITUD (m s.n.m): 50 PRECISIÓN: ±3

ALTO VOLUMEN: MATERIAL PARTICULADO PM_{2.5} PM₁₀

| N.º de medición | Periodo de medición inicial | | Periodo de medición final | | Flujo (L/min) | | Presión (in H ₂ O) | |
|-----------------|-----------------------------|--------------|---------------------------|--------------|---------------|-------|-------------------------------|-------|
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | Inicial | Final | Inicial | Final |
| 1 | 8/04/19 | 10:58 | 9/04/19 | 10:58 | | | 15,9 | 16,6 |
| 2 | 11/04/19 | 09:54 | 12/04/19 | 10:04 | | | 15,7 | 16,8 |
| 3 | 16/04/19 | 10:36 | 17/04/19 | 10:40 | | | 15,8 | 16,4 |
| 4 | 24/04/19 | 10:39 | 25/04/19 | 10:19 | | | 16,0 | 16,5 |
| 5 | 25/04/19 | 10:30 | 26/04/19 | 10:32 | | | 14,9 | 15,6 |
| 6 | 26/04/19 | 10:39 | 27/04/19 | 10:48 | | | 15,5 | 16,1 |

BAJO VOLUMEN: MATERIAL PARTICULADO PM_{2.5} PM₁₀

| N.º de medición | Periodo de medición inicial | | Periodo de medición final | | Volumen | Presión | Temperatura |
|-----------------|-----------------------------|--------------|---------------------------|--------------|---------|---------|-------------|
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | | | |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |

DESCRIPCIÓN DE EQUIPOS EMPLEADOS

| N.º | EQUIPOS | MARCA | MODELO | SERIE |
|-----|--|-------------------|---------------|-------------|
| 1 | Muestreador de Material Particulado < 10 micras | THERMO SCIENTIFIC | - | 1548805 |
| 2 | Muestreador de Material Particulado < 2,5 micras | - | - | - |
| 3 | Motor Venturi | THERMO SCIENTIFIC | HI VOL | P9328 X |
| 4 | Manómetro | - | - | - |
| 5 | Estación meteorológica | DAVIS | VANTAGE PRO 2 | BB180411015 |
| 6 | Otros: MANÓMETRO DE AGUA | DWYER | - | - |

OBSERVACIONES GENERALES

| | | | |
|-----------------------------------|--------------------------|-------|----------------|
| Responsable de grupo de trabajo | <u>Mariella Atala A.</u> | Firma | |
| Responsable de la toma de muestra | <u>Cridy Alfaro G.</u> | Firma | <u>[Firma]</u> |

DATOS DE CAMPO DE AIRE

EXPEDIENTE: _____

CUE: 2019-02-0013 CÓDIGO DE ACCIÓN: 0002-4-2019-401

PUNTO DE MUESTREO: CA-VMP-7 FECHA DE INICIO: 8/04/19 HORA DE INICIO: 11:23 Hrs.

DESCRIPCIÓN: Vivienda de A. H. Virgen de Guadalupe Mz Y lote 28, Mi Peru

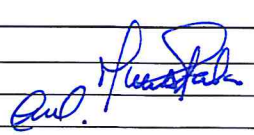
COORDENADAS UTM WGS 84 ZONA: 18L ESTE: 268736 NORTE: 8687699 ALTITUD (m s.n.m): 86 PRECISIÓN: ± 3

| ALTO VOLUMEN : MATERIAL PARTICULADO <input type="checkbox"/> PM _{2.5} <input type="checkbox"/> PM ₁₀ | | | | | | | | |
|--|-----------------------------|--------------|---------------------------|--------------|---------------|-------|-------------------------------|-------|
| N.º de medición | Periodo de medición inicial | | Periodo de medición final | | Flujo (L/min) | | Presión (in H ₂ O) | |
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | Inicial | Final | Inicial | Final |
| 1 | 8/04/19 | 11:23 | 9/04/19 | 11:23 | / | | 16,0 | 18,7 |
| 2 | 11/04/19 | 10:15 | 12/04/19 | 10:22 | | | 15,8 | 17,0 |
| 3 | 16/04/19 | 10:55 | 17/04/19 | 10:58 | | | 15,8 | 16,7 |
| 4 | 24/04/19 | 11:00 | 25/04/19 | 10:46 | | | 15,3 | 15,9 |
| 5 | 25/04/19 | 10:55 | 26/04/19 | 11:11 | | | 13,5 | 14,0 |
| 6 | 26/04/19 | 11:32 | 27/04/19 | 11:18 | | | 15,5 | 16,0 |

| BAJO VOLUMEN : MATERIAL PARTICULADO <input type="checkbox"/> PM _{2.5} <input type="checkbox"/> PM ₁₀ | | | | | | | |
|--|-----------------------------|--------------|---------------------------|--------------|---------|---------|-------------|
| N.º de medición | Periodo de medición inicial | | Periodo de medición final | | Volumen | Presión | Temperatura |
| | Fecha (dd/mm/aa) | Hora (hh:mm) | Fecha (dd/mm/aa) | Hora (hh:mm) | | | |
| 1 | / | | / | | / | / | / |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |

| DESCRIPCIÓN DE EQUIPOS EMPLEADOS | | | | |
|----------------------------------|--|------------------|--------|---------|
| N.º | EQUIPOS | MARCA | MODELO | SERIE |
| 1 | Muestreador de Material Particulado < 10 micras | HERNO SCIENTIFIC | - | 1548205 |
| 2 | Muestreador de Material Particulado < 2,5 micras | - | - | - |
| 3 | Motor Venturi | THERMOSCIENIFIC | - | P9308 X |
| 4 | Manómetro | - | - | - |
| 5 | Estación meteorológica | - | - | - |
| 6 | Otros: MANOMETRO DE AGUA | BWYER | - | - |

OBSERVACIONES GENERALES

| | | | |
|-----------------------------------|--------------------------|-------|---|
| Responsable de grupo de trabajo | <u>Mariella Atala A.</u> | Firma |  |
| Responsable de la toma de muestra | <u>Cindy Alfaro G.</u> | Firma | |

ANEXO N° 3.2



Organismo
de Evaluación
y Fiscalización
Ambiental

Cálculos de Aire



Organismo
de Evaluación
y Fiscalización
Ambiental

MONITOREO DE LA CALIDAD DEL AIRE RESUMEN DE LOS DATOS DE METEOROLOGÍA

DATOS GENERALES

| | | | | | |
|---------|------------------------|------------------------|---------------|-----------------|-------------|
| CUC N°: | 0002-4-2019-401 | ESTACIÓN DE MONITOREO: | CA-VMP-1 | DÍAS EVALUADOS: | 6 |
| EQUIPO: | ESTACIÓN METEOROLÓGICA | | | | |
| MARCA: | Davis | MODELO: | Vantage Pro 2 | SERIE: | BB171204036 |

MEDICIONES PROMEDIO (DATOS DIÁRIOS)

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 1 | INICIO: | 08/04/2019 11:55 | FINAL: | 09/04/2019 11:55 | PERIODO : | 24:00 horas | 1440 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 23,6 | Presión (mm Hg): | 753,5 | Humedad (%): | 74 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,1 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 2 | INICIO: | 11/04/2019 10:39 | FINAL: | 12/04/2019 10:39 | PERIODO : | 24:00 horas | 1440 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 23,0 | Presión (mm Hg): | 752,5 | Humedad (%): | 73 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,0 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 3 | INICIO: | 16/04/2019 11:10 | FINAL: | 17/04/2019 11:14 | PERIODO : | 24:04 horas | 1444 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 23,3 | Presión (mm Hg): | 752,9 | Humedad (%): | 74 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,8 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 4 | INICIO: | 24/04/2019 11:13 | FINAL: | 25/04/2019 11:03 | PERIODO : | 23:50 horas | 1430 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,7 | Presión (mm Hg): | 753,1 | Humedad (%): | 77 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 5 | INICIO: | 25/04/2019 11:15 | FINAL: | 26/04/2019 11:38 | PERIODO : | 24:23 horas | 1463 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 25 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,8 | Presión (mm Hg): | 753,5 | Humedad (%): | 76 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 6 | INICIO: | 26/04/2019 12:04 | FINAL: | 27/04/2019 12:30 | PERIODO : | 24:26 horas | 1466 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 25 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 21,7 | Presión (mm Hg): | 752,5 | Humedad (%): | 77 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

MONITOREO DE LA CALIDAD DEL AIRE

HOJA DE CÁLCULO PARA ESTIMAR LAS CONCENTRACIONES DE MATERIAL PARTICULADO ALTO VOLUMEN

ESTACIÓN DE MONITOREO: CA-VMP-1 **PROCEDENCIA:** CALLAO

UBICACIÓN: **ESTE:** 268824 **NORTE:** 8687841 **ZONA:** 18 L **ALTITUD:** 106 **PRECISIÓN GPS:** ± 3

DESCRIPCIÓN: Ubicado en la azotea de la vivienda del A.H. Virgen de Guadalupe-2da etapa, Mz. O Lote 11, distrito de Mi Perú

PARÁMETROS: PM-10 y Metales en PM-10

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) | ΔPeso (μg) * | Concentración de partículas (μg/m ³) |
|----|------------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|--------------|--|
| 1 | PM-10 | 0203A.R19 | 08/04/2019 11:55 | 09/04/2019 11:55 | 1440 | 23,6 | 753,5 | 0,956 | 1,167 | 1680,77 | 1674,25 | 182100 | 108,76 |
| 2 | | 0207A.R19 | 11/04/2019 10:39 | 12/04/2019 10:39 | 1440 | 23,0 | 752,5 | 0,960 | 1,172 | 1686,96 | 1681,59 | 157100 | 93,42 |
| 3 | | 0211A.R19 | 16/04/2019 11:10 | 17/04/2019 11:14 | 1444 | 23,3 | 752,9 | 0,960 | 1,172 | 1692,30 | 1686,10 | 146000 | 86,59 |
| 4 | | 0215A.R19 | 24/04/2019 11:13 | 25/04/2019 11:03 | 1430 | 22,7 | 753,1 | 0,962 | 1,173 | 1677,96 | 1675,65 | 124600 | 74,36 |
| 5 | | 0219A.R19 | 25/04/2019 11:15 | 26/04/2019 11:38 | 1463 | 22,8 | 753,5 | 0,960 | 1,171 | 1713,47 | 1711,44 | 134400 | 78,53 |
| 6 | | 0223A.R19 | 26/04/2019 12:04 | 27/04/2019 12:30 | 1466 | 21,7 | 752,5 | 0,960 | 1,169 | 1714,34 | 1716,42 | 139300 | 81,16 |
| 1 | Metales en PM 10 | 0203A.R19 | 08/04/2019 11:55 | 09/04/2019 11:55 | 1440 | 23,6 | 753,5 | 0,956 | 1,167 | 1680,77 | 1674,25 | - | - |
| 2 | | 0207A.R19 | 11/04/2019 10:39 | 12/04/2019 10:39 | 1440 | 23,0 | 752,5 | 0,960 | 1,172 | 1686,96 | 1681,59 | - | - |
| 3 | | 0211A.R19 | 16/04/2019 11:10 | 17/04/2019 11:14 | 1444 | 23,3 | 752,9 | 0,960 | 1,172 | 1692,30 | 1686,10 | - | - |
| 4 | | 0215A.R19 | 24/04/2019 11:13 | 25/04/2019 11:03 | 1430 | 22,7 | 753,1 | 0,962 | 1,173 | 1677,96 | 1675,65 | - | - |
| 5 | | 0219A.R19 | 25/04/2019 11:15 | 26/04/2019 11:38 | 1463 | 22,8 | 753,5 | 0,960 | 1,171 | 1713,47 | 1711,44 | - | - |
| 6 | | 0223A.R19 | 26/04/2019 12:04 | 27/04/2019 12:30 | 1466 | 21,7 | 752,5 | 0,960 | 1,169 | 1714,34 | 1716,42 | - | - |

OBSERVACIONES:

(1) El cálculo de volumen estándar para material particulado, se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar), establecidas en el Protocolo de Monitoreo de la Calidad del aire y Gestión de los datos de la DIGESA (2005).

(2) El cálculo de volumen estándar para metales en PM₁₀ se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).

(*) Fuente: Informe de Ensayo N° ABR1201.R19 del laboratorio Certimin S.A.

"-" : No aplica.

MONITOREO DE LA CALIDAD DEL AIRE

HOJA DE CÁLCULO PARA ESTIMAR LAS CONCENTRACIONES DE MATERIAL PARTICULADO BAJO VOLUMEN

ESTACIÓN DE MONITOREO: CA-VMP-1 **PROCEDENCIA:** CALLAO

UBICACIÓN: **ESTE:** 268824 **NORTE:** 8687841 **ZONA:** 18 L **ALTITUD:** 106 **PRECISIÓN GPS:** ± 3

DESCRIPCIÓN: Ubicado en la azotea de la vivienda del A.H. Virgen de Guadalupe-2da etapa, Mz. O Lote 11, distrito de Mi Perú

PARÁMETROS: PM-2,5

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) | ΔPeso (μg) * | Concentración de partículas (μg/m ³) |
|----|-----------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|--------------|--|
| 1 | PM-2,5 | 0207T.R19 | 08/04/2019 11:55 | 09/04/2019 11:55 | 1440 | 22,8 | 755 | - | - | 24,04 | - | 1076 | 44,76 |
| 2 | | 0209T.R19 | 11/04/2019 10:39 | 12/04/2019 10:39 | 1440 | 23,5 | 754 | - | - | 24,04 | - | 820 | 34,11 |
| 3 | | 0211T.R19 | 16/04/2019 11:10 | 17/04/2019 11:10 | 1440 | 22,9 | 754 | - | - | 24,05 | - | 863 | 35,88 |
| 4 | | 0213T.R19 | 24/04/2019 11:13 | 25/04/2019 11:03 | 1430 | 23,1 | 755 | - | - | 23,89 | - | 791 | 33,11 |
| 5 | | 0215T.R19 | 25/04/2019 11:15 | 26/04/2019 11:15 | 1440 | 22,9 | 755 | - | - | 24,05 | - | 928 | 38,59 |
| 6 | | 0217T.R19 | 26/04/2019 12:04 | 27/04/2019 12:04 | 1440 | 22,2 | 754 | - | - | 24,05 | - | 254 | 10,56 |

OBSERVACIONES:

(1) El volumen muestreado real para material particulado PM_{2,5} es arrojado por el equipo muestreador de bajo volumen.

(*) Fuente: Informe de Ensayo N° ABR1200.R19 del laboratorio Certimin S.A.

"-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| RESULTADOS DE LABORATORIO | | | | | | | | |
|----------------------------------|--------|------------|------------|------------|------------|------------|------------|------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-1 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 991 | 1260 | 1154 | 922 | 817 | 918 |
| Arsénico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 23 | 29 | 25 | 24 | 22 | 23 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 236 | 55 | 58 | 29 | 11 | 38 |
| Calcio | Ca | µg/mtra | 4230 | 4297 | 3764 | 3747 | 3481 | 3429 |
| Cadmio | Cd | µg/mtra | 5 | 6 | 3 | 8 | 6 | 12 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 32 | 42 | 38 | 32 | 53 | 63 |
| Cobre | Cu | µg/mtra | 255 | 316 | 280 | 376 | 243 | 282 |
| Hierro | Fe | µg/mtra | 2210 | 2405 | 2066 | 1792 | 1761 | 2013 |
| Potasio | K | µg/mtra | 789 | 831 | 836 | 583 | 661 | 672 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 1720 | 1705 | 1817 | 1167 | 1265 | 1372 |
| Manganeso | Mn | µg/mtra | 46 | 54 | 43 | 42 | 40 | 40 |
| Molibdeno | Mo | µg/mtra | 6 | 130 | 6 | 19 | 29 | 19 |
| Sodio | Na | µg/mtra | 9636 | 8709 | 10235 | 5359 | 6490 | 7041 |
| Níquel | Ni | µg/mtra | 16 | 19 | 23 | 29 | 24 | 16 |
| Fosforo | P | µg/mtra | 401 | 326 | 256 | 298 | 301 | 218 |
| Plomo | Pb | µg/mtra | 412 | 590 | 510 | 1323 | 1050 | 1245 |
| Antimonio | Sb | µg/mtra | <9 | 26 | 16 | 35 | 14 | 30 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 948 | 2623 | 2461 | 1961 | 1615 | 2150 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | <15 |
| Estroncio | Sr | µg/mtra | 19,3 | 21 | 19,3 | 16,2 | 16 | 17,3 |
| Titanio | Ti | µg/mtra | 51 | 59 | 51 | 38 | 33 | 42 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 31,3 | 41,2 | 63,2 | 61,3 | 47,9 | 35,9 |
| Zinc | Zn | µg/mtra | 400 | 396 | 256 | 339 | 417 | 307 |

<: Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1201.R19 del laboratorio Certimin S.A.

| CONCENTRACIÓN DE METALES | | | | | | | | |
|---|--------|-------------------|----------------|----------------|----------------|----------------|----------------|-------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-1 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Volumen estándar (m³) | | 1674,25 | 1681,59 | 1686,10 | 1675,65 | 1711,44 | 1716,42 | |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | µg/m ³ | 0,59 | 0,75 | 0,68 | 0,55 | 0,48 | 0,53 |
| Arsénico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,014 | 0,017 | 0,015 | 0,014 | 0,013 | 0,013 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | 0,141 | 0,033 | 0,034 | 0,017 | 0,006 | 0,022 |
| Calcio | Ca | µg/m ³ | 2,53 | 2,56 | 2,23 | 2,24 | 2,03 | 2,00 |
| Cadmio | Cd | µg/m ³ | 0,003 | 0,004 | 0,002 | 0,005 | 0,004 | 0,007 |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,019 | 0,025 | 0,023 | 0,019 | 0,031 | 0,037 |
| Cobre | Cu | µg/m ³ | 0,152 | 0,188 | 0,166 | 0,224 | 0,142 | 0,164 |
| Hierro | Fe | µg/m ³ | 1,32 | 1,43 | 1,23 | 1,07 | 1,03 | 1,17 |
| Potasio | K | µg/m ³ | 0,471 | 0,494 | 0,496 | 0,348 | 0,386 | 0,392 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,03 | 1,01 | 1,08 | 0,70 | 0,74 | 0,80 |
| Manganeso | Mn | µg/m ³ | 0,027 | 0,032 | 0,026 | 0,025 | 0,023 | 0,023 |
| Molibdeno | Mo | µg/m ³ | 0,004 | 0,077 | 0,004 | 0,011 | 0,017 | 0,011 |
| Sodio | Na | µg/m ³ | 5,76 | 5,18 | 6,07 | 3,20 | 3,79 | 4,10 |
| Níquel | Ni | µg/m ³ | 0,010 | 0,011 | 0,014 | N.D. | 0,014 | 0,009 |
| Fosforo | P | µg/m ³ | 0,240 | 0,194 | 0,152 | 0,178 | 0,176 | 0,127 |
| Plomo | Pb | µg/m ³ | 0,246 | 0,351 | 0,302 | 0,790 | 0,614 | 0,725 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | 0,017 |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 0,57 | 1,56 | 1,46 | 1,17 | 0,94 | 1,25 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,012 | 0,012 | 0,011 | 0,010 | 0,009 | 0,010 |
| Titanio | Ti | µg/m ³ | 0,030 | 0,035 | 0,030 | 0,023 | 0,019 | 0,024 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,019 | 0,025 | 0,037 | 0,037 | 0,028 | 0,021 |
| Zinc | Zn | µg/m ³ | 0,239 | 0,235 | 0,152 | 0,202 | 0,244 | 0,179 |

Observación: Concentración de metales calculados a T=25 °C ó 298,15 °K

N.D.: No detectable

MONITOREO DE LA CALIDAD DEL AIRE HOJA DE CÁLCULO PARA ESTIMAR EL VOLUMEN ESTÁNDAR PARA METALES (10°C)

| | | | | | | | | | | |
|-------------------------------|--------------|--|---------------|---------------------|--------------|--------|-----------------|-----|-----------------------|-----|
| ESTACIÓN DE MONITOREO: | | CA-VMP-1 | | PROCEDENCIA: | | CALLAO | | | | |
| UBICACIÓN: | ESTE: | 268824 | NORTE: | 8687841 | ZONA: | 18 L | ALTITUD: | 106 | PRECISIÓN GPS: | ± 3 |
| DESCRIPCIÓN: | | Ubicado en la azotea de la vivienda del A.H. Virgen de Guadalupe-2da etapa, Mz. O Lote 11, distrito de Mi Perú | | | | | | | | |
| PARÁMETROS: | | Metales en PM-10 | | | | | | | | |

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) |
|----|------------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|
| 1 | Metales PM 10 | 0203A.R19 | 08/04/2019 11:55 | 09/04/2019 11:55 | 1440 | 23,6 | 753,5 | 0,956 | 1,167 | 1680,77 | 1590,02 |
| 2 | | 0207A.R19 | 11/04/2019 10:39 | 12/04/2019 10:39 | 1440 | 23,0 | 752,5 | 0,960 | 1,172 | 1686,96 | 1596,99 |
| 3 | | 0211A.R19 | 16/04/2019 11:10 | 17/04/2019 11:14 | 1444 | 23,3 | 752,9 | 0,960 | 1,172 | 1692,30 | 1601,27 |
| 4 | | 0215A.R19 | 24/04/2019 11:13 | 25/04/2019 11:03 | 1430 | 22,7 | 753,1 | 0,962 | 1,173 | 1677,96 | 1591,35 |
| 5 | | 0219A.R19 | 25/04/2019 11:15 | 26/04/2019 11:38 | 1463 | 22,8 | 753,5 | 0,960 | 1,171 | 1713,47 | 1625,34 |
| 6 | | 0223A.R19 | 26/04/2019 12:04 | 27/04/2019 12:30 | 1466 | 21,7 | 752,5 | 0,960 | 1,169 | 1714,34 | 1630,07 |

OBSERVACIONES:

(1) El cálculo de volumen estándar para metales en PM₁₀, se realizó en base a las condiciones de temperatura estándar (T= 10°C ó 283.15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).
 "-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| RESULTADOS DE LABORATORIO | | | | | | | | |
|----------------------------------|--------|------------|------------|------------|------------|------------|------------|------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-1 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 991 | 1260 | 1154 | 922 | 817 | 918 |
| Arsénico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 23 | 29 | 25 | 24 | 22 | 23 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 236 | 55 | 58 | 29 | 11 | 38 |
| Calcio | Ca | µg/mtra | 4230 | 4297 | 3764 | 3747 | 3481 | 3429 |
| Cadmio | Cd | µg/mtra | 5 | 6 | 3 | 8 | 6 | 12 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 32 | 42 | 38 | 32 | 53 | 63 |
| Cobre | Cu | µg/mtra | 255 | 316 | 280 | 376 | 243 | 282 |
| Hierro | Fe | µg/mtra | 2210 | 2405 | 2066 | 1792 | 1761 | 2013 |
| Potasio | K | µg/mtra | 789 | 831 | 836 | 583 | 661 | 672 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 1720 | 1705 | 1817 | 1167 | 1265 | 1372 |
| Manganeso | Mn | µg/mtra | 46 | 54 | 43 | 42 | 40 | 40 |
| Molibdeno | Mo | µg/mtra | 6 | 130 | 6 | 19 | 29 | 19 |
| Sodio | Na | µg/mtra | 9636 | 8709 | 10235 | 5359 | 6490 | 7041 |
| Níquel | Ni | µg/mtra | 16 | 19 | 23 | 29 | 24 | 16 |
| Fosforo | P | µg/mtra | 401 | 326 | 256 | 298 | 301 | 218 |
| Plomo | Pb | µg/mtra | 412 | 590 | 510 | 1323 | 1050 | 1245 |
| Antimonio | Sb | µg/mtra | <9 | 26 | 16 | 35 | 14 | 30 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 948 | 2623 | 2461 | 1961 | 1615 | 2150 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | <15 |
| Estroncio | Sr | µg/mtra | 19,3 | 21 | 19,3 | 16,2 | 16 | 17,3 |
| Titanio | Ti | µg/mtra | 51 | 59 | 51 | 38 | 33 | 42 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 31,3 | 41,2 | 63,2 | 61,3 | 47,9 | 35,9 |
| Zinc | Zn | µg/mtra | 400 | 396 | 256 | 339 | 417 | 307 |

<: Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1201.R19 del laboratorio Certimin S.A.

| CONCENTRACIÓN DE METALES | | | | | | | | |
|---|--------|-------------------|----------------|----------------|----------------|----------------|----------------|-------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-1 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Volumen estándar (m³) | | 1590,02 | 1596,99 | 1601,27 | 1591,35 | 1625,34 | 1630,07 | |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | µg/m ³ | 0,62 | 0,79 | 0,72 | 0,58 | 0,50 | 0,56 |
| Arsénico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,014 | 0,018 | 0,016 | 0,015 | 0,014 | 0,014 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | 0,148 | 0,034 | 0,036 | 0,018 | 0,007 | 0,023 |
| Calcio | Ca | µg/m ³ | 2,66 | 2,69 | 2,35 | 2,35 | 2,14 | 2,10 |
| Cadmio | Cd | µg/m ³ | 0,003 | 0,004 | 0,002 | 0,005 | 0,004 | 0,007 |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,020 | 0,026 | 0,024 | 0,020 | 0,033 | 0,039 |
| Cobre | Cu | µg/m ³ | 0,160 | 0,198 | 0,175 | 0,236 | 0,150 | 0,173 |
| Hierro | Fe | µg/m ³ | 1,39 | 1,51 | 1,29 | 1,13 | 1,08 | 1,23 |
| Potasio | K | µg/m ³ | 0,496 | 0,520 | 0,522 | 0,366 | 0,407 | 0,412 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,08 | 1,07 | 1,13 | 0,73 | 0,78 | 0,84 |
| Manganeso | Mn | µg/m ³ | 0,029 | 0,034 | 0,027 | 0,026 | 0,025 | 0,025 |
| Molibdeno | Mo | µg/m ³ | 0,004 | 0,081 | 0,004 | 0,012 | 0,018 | 0,012 |
| Sodio | Na | µg/m ³ | 6,06 | 5,45 | 6,39 | 3,37 | 3,99 | 4,32 |
| Níquel | Ni | µg/m ³ | 0,010 | 0,012 | 0,014 | N.D. | 0,015 | 0,010 |
| Fosforo | P | µg/m ³ | 0,252 | 0,204 | 0,160 | 0,187 | 0,185 | 0,134 |
| Plomo | Pb | µg/m ³ | 0,259 | 0,369 | 0,318 | 0,831 | 0,646 | 0,764 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | 0,018 |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 0,60 | 1,64 | 1,54 | 1,23 | 0,99 | 1,32 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,012 | 0,013 | 0,012 | 0,010 | 0,010 | 0,011 |
| Titanio | Ti | µg/m ³ | 0,032 | 0,037 | 0,032 | 0,024 | 0,020 | 0,026 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,020 | 0,026 | 0,039 | 0,039 | 0,029 | 0,022 |

Observación: Concentración de metales calculados a T=10 °C ó 283,15 °K

N.D.: No detectable



Organismo
de Evaluación
y Fiscalización
Ambiental

MONITOREO DE LA CALIDAD DEL AIRE RESUMEN DE LOS DATOS DE METEOROLOGÍA

DATOS GENERALES

| | | | | | |
|---------|------------------------|------------------------|---------------|-----------------|-------------|
| CUC N°: | 0002-4-2019-401 | ESTACIÓN DE MONITOREO: | CA-VMP-2 | DÍAS EVALUADOS: | 6 |
| EQUIPO: | ESTACIÓN METEOROLÓGICA | | | | |
| MARCA: | Davis | MODELO: | Vantage Pro 2 | SERIE: | BB180411015 |

MEDICIONES PROMEDIO (DATOS DIÁRIOS)

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 1 | INICIO: | 08/04/2019 12:30 | FINAL: | 09/04/2019 12:30 | PERIODO : | 24:00 horas | 1440 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 23,4 | Presión (mm Hg): | 757,2 | Humedad (%): | 75 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,0 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 2 | INICIO: | 11/04/2019 10:53 | FINAL: | 12/04/2019 10:53 | PERIODO : | 24:00 horas | 1440 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,6 | Presión (mm Hg): | 756,2 | Humedad (%): | 72 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 3 | INICIO: | 16/04/2019 11:25 | FINAL: | 17/04/2019 11:30 | PERIODO : | 24:05 horas | 1445 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,3 | Presión (mm Hg): | 756,6 | Humedad (%): | 75 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 4 | INICIO: | 24/04/2019 11:28 | FINAL: | 25/04/2019 11:28 | PERIODO : | 24:00 horas | 1440 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,5 | Presión (mm Hg): | 756,8 | Humedad (%): | 77 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,0 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 5 | INICIO: | 25/04/2019 11:38 | FINAL: | 26/04/2019 12:18 | PERIODO : | 24:40 horas | 1480 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 25 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,1 | Presión (mm Hg): | 757,2 | Humedad (%): | 77 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,0 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|------------|---------|
| DÍA 6 | INICIO: | 26/04/2019 12:38 | FINAL: | 26/04/2019 17:38 | PERIODO : | 5:00 horas | 300 min |
|-------|---------|------------------|--------|------------------|-----------|------------|---------|

Datos horarios registrados: 5 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 23,3 | Presión (mm Hg): | 755,7 | Humedad (%): | 72 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,5 |

MONITOREO DE LA CALIDAD DEL AIRE

HOJA DE CÁLCULO PARA ESTIMAR LAS CONCENTRACIONES DE MATERIAL PARTICULADO ALTO VOLUMEN

ESTACIÓN DE MONITOREO: CA-VMP-2 **PROCEDENCIA:** CALLAO

UBICACIÓN: **ESTE:** 268576 **NORTE:** 8688063 **ZONA:** 18 L **ALTITUD:** 80 **PRECISIÓN GPS:** ± 3

DESCRIPCIÓN: Ubicado en la I.E.P. Arturo Padilla Espinoza, Av. Revolución N° 2494, distrito de Ventanilla

PARÁMETROS: PM-10 y Metales en PM-10

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) | ΔPeso (μg) * | Concentración de partículas (μg/m ³) |
|----|------------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|--------------|--|
| 1 | PM-10 | 0204A.R19 | 08/04/2019 12:30 | 09/04/2019 12:30 | 1440 | 23,4 | 757,2 | 0,960 | 1,172 | 1687,82 | 1690,68 | 207500 | 122,73 |
| 2 | | 0208A.R19 | 11/04/2019 10:53 | 12/04/2019 10:53 | 1440 | 22,6 | 756,2 | 0,962 | 1,173 | 1689,41 | 1694,60 | 171100 | 100,97 |
| 3 | | 0212A.R19 | 16/04/2019 11:25 | 17/04/2019 11:30 | 1445 | 22,3 | 756,6 | 0,961 | 1,172 | 1692,96 | 1700,79 | 160900 | 94,60 |
| 4 | | 0216A.R19 | 24/04/2019 11:28 | 25/04/2019 11:28 | 1440 | 22,5 | 756,8 | 0,962 | 1,173 | 1689,12 | 1696,23 | 139800 | 82,42 |
| 5 | | 0220A.R19 | 25/04/2019 11:38 | 26/04/2019 12:18 | 1480 | 22,1 | 757,2 | 0,962 | 1,172 | 1734,86 | 1745,44 | 148700 | 85,19 |
| 6 | | 0224A.R19 | 26/04/2019 12:38 | 26/04/2019 17:38 | 300 | 23,3 | 755,7 | 0,962 | 1,175 | 352,38 | 352,40 | 32000 | 90,81 |
| 1 | Metales en PM 10 | 0204A.R19 | 08/04/2019 12:30 | 09/04/2019 12:30 | 1440 | 23,4 | 757,2 | 0,960 | 1,172 | 1687,82 | 1690,68 | - | - |
| 2 | | 0208A.R19 | 11/04/2019 10:53 | 12/04/2019 10:53 | 1440 | 22,6 | 756,2 | 0,962 | 1,173 | 1689,41 | 1694,60 | - | - |
| 3 | | 0212A.R19 | 16/04/2019 11:25 | 17/04/2019 11:30 | 1445 | 22,3 | 756,6 | 0,961 | 1,172 | 1692,96 | 1700,79 | - | - |
| 4 | | 0216A.R19 | 24/04/2019 11:28 | 25/04/2019 11:28 | 1440 | 22,5 | 756,8 | 0,962 | 1,173 | 1689,12 | 1696,23 | - | - |
| 5 | | 0220A.R19 | 25/04/2019 11:38 | 26/04/2019 12:18 | 1480 | 22,1 | 757,2 | 0,962 | 1,172 | 1734,86 | 1745,44 | - | - |
| 6 | | 0224A.R19 | 26/04/2019 12:38 | 26/04/2019 17:38 | 300 | 23,3 | 755,7 | 0,962 | 1,175 | 352,38 | 352,40 | - | - |

OBSERVACIONES:

(1) El cálculo de volumen estándar para material particulado, se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar), establecidas en el Protocolo de Monitoreo de la Calidad del aire y Gestión de los datos de la DIGESA (2005).

(2) El cálculo de volumen estándar para metales en PM₁₀ se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).

(* Fuente: Informe de Ensayo N° ABR1201.R19 del laboratorio Certimin S.A.

"-" : No aplica.

MONITOREO DE LA CALIDAD DEL AIRE

HOJA DE CÁLCULO PARA ESTIMAR LAS CONCENTRACIONES DE MATERIAL PARTICULADO BAJO VOLUMEN

ESTACIÓN DE MONITOREO: CA-VMP-2 **PROCEDENCIA:** CALLAO

UBICACIÓN: **ESTE:** 268576 **NORTE:** 8688063 **ZONA:** 18 L **ALTITUD:** 80 **PRECISIÓN GPS:** ± 3

DESCRIPCIÓN: Ubicado en la I.E.P. Arturo Padilla Espinoza, Av. Revolución N° 2494, distrito de Ventanilla

PARÁMETROS: PM-2,5

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) | ΔPeso (μg) * | Concentración de partículas (μg/m ³) |
|----|-----------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|--------------|--|
| 1 | PM-2,5 | 0208T.R19 | 04/03/2019 15:28 | 05/03/2019 14:58 | 1410 | 22,9 | 749 | - | - | 24,03 | - | 1113 | 46,32 |
| 2 | | 0210T.R19 | 07/03/2019 11:48 | 08/03/2019 11:18 | 1410 | 22,8 | 749 | - | - | 24,03 | - | 758 | 31,54 |
| 3 | | 0212T.R19 | 13/03/2019 15:47 | 14/03/2019 14:47 | 1380 | 22,6 | 750 | - | - | 24,03 | - | 804 | 33,46 |
| 4 | | 0214T.R19 | 16/03/2019 11:53 | 17/03/2019 11:23 | 1410 | 22,4 | 750 | - | - | 24,03 | - | 811 | 33,75 |
| 5 | | 0216T.R19 | 19/03/2019 11:44 | 20/03/2019 11:44 | 1440 | 22,1 | 750 | - | - | 24,03 | - | 889 | 37,00 |
| 6 | | 0218T.R19 | 29/03/2019 13:36 | 30/03/2019 13:06 | 1410 | 21,3 | 749 | - | - | 24,03 | - | 870 | 36,20 |

OBSERVACIONES:

(1) El volumen muestreado real para material particulado PM_{2,5} es arrojado por el equipo muestreador de bajo volumen.

(*) Fuente: Informe de Ensayo N° ABR1200.R19 del laboratorio Certimin S.A.

"-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| RESULTADOS DE LABORATORIO | | | | | | | | |
|----------------------------------|--------|------------|------------|------------|------------|------------|------------|------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-2 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 1351 | 1644 | 1189 | 1199 | 1298 | 345 |
| Arsénico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 35 | 38 | 28 | 31 | 32 | 7 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 120 | 350 | 126 | 25 | 209 | 23 |
| Calcio | Ca | µg/mtra | 5639 | 5658 | 4103 | 3850 | 4009 | 1150 |
| Cadmio | Cd | µg/mtra | 12 | 22 | 19 | 13 | 41 | 6 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 48 | 49 | 37 | 35 | 31 | 28 |
| Cobre | Cu | µg/mtra | 299 | 386 | 301 | 216 | 286 | 70 |
| Hierro | Fe | µg/mtra | 2847 | 3054 | 2145 | 2292 | 2352 | 687 |
| Potasio | K | µg/mtra | 865 | 918 | 834 | 594 | 654 | 177 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 2048 | 2034 | 1778 | 1283 | 1513 | 314 |
| Manganeso | Mn | µg/mtra | 63 | 68 | 46 | 47 | 49 | 13 |
| Molibdeno | Mo | µg/mtra | 5 | 88 | 4 | 13 | 38 | <3 |
| Sodio | Na | µg/mtra | 10106 | 9211 | 9206 | 5038 | 6493 | 1056 |
| Níquel | Ni | µg/mtra | 15 | 19 | 21 | 22 | 18 | <5 |
| Fosforo | P | µg/mtra | 442 | 318 | 171 | 173 | 184 | <35 |
| Plomo | Pb | µg/mtra | 295 | 364 | 324 | 210 | 183 | 269 |
| Antimonio | Sb | µg/mtra | <9 | 17 | 10 | 14 | <9 | 40 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 2496 | 3125 | 2572 | 576 | 2618 | 1215 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | 23 |
| Estroncio | Sr | µg/mtra | 25,6 | 26,9 | 21,3 | 17,9 | 20,8 | 5,9 |
| Titanio | Ti | µg/mtra | 59 | 73 | 56 | 57 | 65 | 17 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 30,9 | 40,7 | 52,8 | 53,2 | 40,5 | 3,1 |
| Zinc | Zn | µg/mtra | 409 | 391 | 243 | 224 | 495 | 57 |

<: Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1201.R19 del laboratorio Certimin S.A.

| CONCENTRACIÓN DE METALES | | | | | | | | |
|---|--------|-------------------|----------------|----------------|----------------|----------------|---------------|----------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-2 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Volumen estándar (m³) | | 1690,68 | 1694,60 | 1700,79 | 1696,23 | 1745,44 | 352,40 | |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | #1VALOR! |
| Aluminio | Al | µg/m ³ | 0,80 | 0,97 | 0,70 | 0,71 | 0,74 | 0,98 |
| Arsénico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,021 | 0,022 | 0,016 | 0,018 | 0,018 | 0,020 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | N.D. | 0,207 | 0,074 | N.D. | 0,120 | 0,065 |
| Calcio | Ca | µg/m ³ | 3,34 | 3,34 | 2,41 | 2,27 | 2,30 | 3,26 |
| Cadmio | Cd | µg/m ³ | 0,007 | 0,013 | 0,011 | 0,008 | 0,023 | 0,017 |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,028 | 0,029 | 0,022 | 0,021 | 0,018 | 0,079 |
| Cobre | Cu | µg/m ³ | 0,177 | 0,228 | 0,177 | 0,127 | 0,164 | 0,199 |
| Hierro | Fe | µg/m ³ | 1,68 | 1,80 | 1,26 | 1,35 | 1,35 | 1,95 |
| Potasio | K | µg/m ³ | 0,512 | 0,542 | 0,490 | 0,350 | 0,375 | 0,502 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,21 | 1,20 | 1,05 | 0,76 | 0,87 | 0,89 |
| Manganeso | Mn | µg/m ³ | 0,037 | 0,040 | 0,027 | 0,028 | 0,028 | 0,037 |
| Molibdeno | Mo | µg/m ³ | 0,003 | N.D. | N.D. | N.D. | N.D. | N.D. |
| Sodio | Na | µg/m ³ | 5,98 | 5,44 | 5,41 | 2,97 | 3,72 | 3,00 |
| Níquel | Ni | µg/m ³ | N.D. | 0,011 | 0,012 | N.D. | 0,010 | N.D. |
| Fosforo | P | µg/m ³ | 0,261 | 0,188 | 0,101 | 0,102 | 0,105 | N.D. |
| Plomo | Pb | µg/m ³ | 0,174 | 0,215 | 0,190 | 0,124 | 0,105 | 0,763 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 1,48 | 1,84 | 1,51 | 0,34 | 1,50 | 3,45 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,015 | 0,016 | 0,013 | 0,011 | 0,012 | 0,017 |
| Titanio | Ti | µg/m ³ | 0,035 | 0,043 | 0,033 | 0,034 | 0,037 | 0,048 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,018 | 0,024 | 0,031 | 0,031 | 0,023 | 0,009 |
| Zinc | Zn | µg/m ³ | 0,242 | 0,231 | 0,143 | 0,132 | 0,284 | 0,162 |

Observación: Concentración de metales calculados a T=25 °C ó 298,15 °K

N.D.: No detectable

MONITOREO DE LA CALIDAD DEL AIRE HOJA DE CÁLCULO PARA ESTIMAR EL VOLUMEN ESTÁNDAR PARA METALES (10°C)

| | | | | | | | | | | |
|-------------------------------|--------------|--|---------------|---------------------|--------------|--------|-----------------|----|-----------------------|-----|
| ESTACIÓN DE MONITOREO: | | CA-VMP-2 | | PROCEDENCIA: | | CALLAO | | | | |
| UBICACIÓN: | ESTE: | 268576 | NORTE: | 8688063 | ZONA: | 18 L | ALTITUD: | 80 | PRECISIÓN GPS: | ± 3 |
| DESCRIPCIÓN: | | Ubicado en la I.E.P. Arturo Padilla Espinoza, Av. Revolución N° 2494, distrito de Ventanilla | | | | | | | | |
| PARÁMETROS: | | Metales en PM-10 | | | | | | | | |

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) |
|----|------------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|
| 1 | Metales PM 10 | 0204A.R19 | 08/04/2019 12:30 | 09/04/2019 12:30 | 1440 | 23,4 | 757,2 | 0,960 | 1,172 | 1687,82 | 1605,62 |
| 2 | | 0208A.R19 | 11/04/2019 10:53 | 12/04/2019 10:53 | 1440 | 22,6 | 756,2 | 0,962 | 1,173 | 1689,41 | 1609,35 |
| 3 | | 0212A.R19 | 16/04/2019 11:25 | 17/04/2019 11:30 | 1445 | 22,3 | 756,6 | 0,961 | 1,172 | 1692,96 | 1615,22 |
| 4 | | 0216A.R19 | 24/04/2019 11:28 | 25/04/2019 11:28 | 1440 | 22,5 | 756,8 | 0,962 | 1,173 | 1689,12 | 1610,89 |
| 5 | | 0220A.R19 | 25/04/2019 11:38 | 26/04/2019 12:18 | 1480 | 22,1 | 757,2 | 0,962 | 1,172 | 1734,86 | 1657,63 |
| 6 | | 0224A.R19 | 26/04/2019 12:38 | 26/04/2019 17:38 | 300 | 23,3 | 755,7 | 0,962 | 1,175 | 352,38 | 334,67 |

OBSERVACIONES:

(1) El cálculo de volumen estándar para metales en PM₁₀, se realizó en base a las condiciones de temperatura estándar (T= 10°C ó 283.15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).
 "-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| RESULTADOS DE LABORATORIO | | | | | | | | |
|----------------------------------|--------|------------|------------|------------|------------|------------|------------|------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-2 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 1351 | 1644 | 1189 | 1199 | 1298 | 345 |
| Arsénico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 35 | 38 | 28 | 31 | 32 | 7 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 120 | 350 | 126 | 25 | 209 | 23 |
| Calcio | Ca | µg/mtra | 5639 | 5658 | 4103 | 3850 | 4009 | 1150 |
| Cadmio | Cd | µg/mtra | 12 | 22 | 19 | 13 | 41 | 6 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 48 | 49 | 37 | 35 | 31 | 28 |
| Cobre | Cu | µg/mtra | 299 | 386 | 301 | 216 | 286 | 70 |
| Hierro | Fe | µg/mtra | 2847 | 3054 | 2145 | 2292 | 2352 | 687 |
| Potasio | K | µg/mtra | 865 | 918 | 834 | 594 | 654 | 177 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 2048 | 2034 | 1778 | 1283 | 1513 | 314 |
| Manganeso | Mn | µg/mtra | 63 | 68 | 46 | 47 | 49 | 13 |
| Molibdeno | Mo | µg/mtra | 5 | 88 | 4 | 13 | 38 | <3 |
| Sodio | Na | µg/mtra | 10106 | 9211 | 9206 | 5038 | 6493 | 1056 |
| Níquel | Ni | µg/mtra | 15 | 19 | 21 | 22 | 18 | <5 |
| Fosforo | P | µg/mtra | 442 | 318 | 171 | 173 | 184 | <35 |
| Plomo | Pb | µg/mtra | 295 | 364 | 324 | 210 | 183 | 269 |
| Antimonio | Sb | µg/mtra | <9 | 17 | 10 | 14 | <9 | 40 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 2496 | 3125 | 2572 | 576 | 2618 | 1215 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | 23 |
| Estroncio | Sr | µg/mtra | 25,6 | 26,9 | 21,3 | 17,9 | 20,8 | 5,9 |
| Titanio | Ti | µg/mtra | 59 | 73 | 56 | 57 | 65 | 17 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 30,9 | 40,7 | 52,8 | 53,2 | 40,5 | 3,1 |
| Zinc | Zn | µg/mtra | 409 | 391 | 243 | 224 | 495 | 57 |

<: Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1201.R19 del laboratorio Certimin S.A.

| CONCENTRACIÓN DE METALES | | | | | | | | |
|---|--------|-------------------|----------------|----------------|----------------|----------------|---------------|-------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-2 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Volumen estándar (m³) | | 1605,62 | 1609,35 | 1615,22 | 1610,89 | 1657,63 | 334,67 | |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | µg/m ³ | 0,84 | 1,02 | 0,74 | 0,74 | 0,78 | 1,03 |
| Arsénico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,022 | 0,024 | 0,017 | 0,019 | 0,019 | 0,021 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | N.D. | 0,217 | 0,078 | N.D. | 0,126 | 0,069 |
| Calcio | Ca | µg/m ³ | 3,51 | 3,52 | 2,54 | 2,39 | 2,42 | 3,44 |
| Cadmio | Cd | µg/m ³ | 0,007 | 0,014 | 0,012 | 0,008 | 0,025 | 0,018 |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,030 | 0,030 | 0,023 | 0,022 | 0,019 | 0,084 |
| Cobre | Cu | µg/m ³ | 0,186 | 0,240 | 0,186 | 0,134 | 0,173 | 0,209 |
| Hierro | Fe | µg/m ³ | 1,77 | 1,90 | 1,33 | 1,42 | 1,42 | 2,05 |
| Potasio | K | µg/m ³ | 0,539 | 0,570 | 0,516 | 0,369 | 0,395 | 0,529 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,28 | 1,26 | 1,10 | 0,80 | 0,91 | 0,94 |
| Manganeso | Mn | µg/m ³ | 0,039 | 0,042 | 0,028 | 0,029 | 0,030 | 0,039 |
| Molibdeno | Mo | µg/m ³ | 0,003 | N.D. | N.D. | N.D. | N.D. | N.D. |
| Sodio | Na | µg/m ³ | 6,29 | 5,72 | 5,70 | 3,13 | 3,92 | 3,16 |
| Níquel | Ni | µg/m ³ | N.D. | 0,012 | 0,013 | N.D. | 0,011 | N.D. |
| Fosforo | P | µg/m ³ | 0,275 | 0,198 | 0,106 | 0,107 | 0,111 | N.D. |
| Plomo | Pb | µg/m ³ | 0,184 | 0,226 | 0,201 | 0,130 | 0,110 | 0,804 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 1,55 | 1,94 | 1,59 | 0,36 | 1,58 | 3,63 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,016 | 0,017 | 0,013 | 0,011 | 0,013 | 0,018 |
| Titanio | Ti | µg/m ³ | 0,037 | 0,045 | 0,035 | 0,035 | 0,039 | 0,051 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,019 | 0,025 | 0,033 | 0,033 | 0,024 | 0,009 |
| Zinc | Zn | µg/m ³ | 0,255 | 0,243 | 0,150 | 0,139 | 0,299 | 0,170 |

Observación: Concentración de metales calculados a T=10 °C ó 283,15 °K

N.D.: No detectable



Organismo
de Evaluación
y Fiscalización
Ambiental

MONITOREO DE LA CALIDAD DEL AIRE RESUMEN DE LOS DATOS DE METEOROLOGÍA

DATOS GENERALES

| | | | | | |
|---------|------------------------|------------------------|---------------|-----------------|-------------|
| CUC N°: | 0002-4-2019-401 | ESTACIÓN DE MONITOREO: | CA-VMP-6 | DÍAS EVALUADOS: | 6 |
| EQUIPO: | ESTACIÓN METEOROLÓGICA | | | | |
| MARCA: | Davis | MODELO: | Vantage Pro 2 | SERIE: | BB180411015 |

MEDICIONES PROMEDIO (DATOS DIÁRIOS)

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 1 | INICIO: | 08/04/2019 10:58 | FINAL: | 09/04/2019 10:58 | PERIODO : | 24:00 horas | 1440 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 23,2 | Presión (mm Hg): | 757,2 | Humedad (%): | 76 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 2 | INICIO: | 11/04/2019 09:54 | FINAL: | 12/04/2019 10:04 | PERIODO : | 24:10 horas | 1450 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,7 | Presión (mm Hg): | 756,3 | Humedad (%): | 72 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 3 | INICIO: | 16/04/2019 10:36 | FINAL: | 17/04/2019 10:40 | PERIODO : | 24:04 horas | 1444 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,2 | Presión (mm Hg): | 756,6 | Humedad (%): | 75 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 0,9 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 4 | INICIO: | 24/04/2019 10:39 | FINAL: | 25/04/2019 10:19 | PERIODO : | 23:40 horas | 1420 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,6 | Presión (mm Hg): | 756,8 | Humedad (%): | 76 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,0 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 5 | INICIO: | 25/04/2019 10:30 | FINAL: | 26/04/2019 10:32 | PERIODO : | 24:02 horas | 1442 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 22,0 | Presión (mm Hg): | 757,2 | Humedad (%): | 78 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,0 |

| | | | | | | | |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|
| DÍA 6 | INICIO: | 26/04/2019 10:39 | FINAL: | 27/04/2019 10:48 | PERIODO : | 24:09 horas | 1449 min |
|-------|---------|------------------|--------|------------------|-----------|-------------|----------|

Datos horarios registrados: 24 horas

| | | | | | |
|---------------------|------|---------------------------|-------|-----------------------------|-----|
| Temperatura (°C): | 21,4 | Presión (mm Hg): | 756,0 | Humedad (%): | 77 |
| Precipitación (mm): | 0 | Dirección del viento (°): | - | Velocidad del Viento (m/s): | 1,0 |

ESTACIÓN DE MONITOREO: CA-VMP-6 **PROCEDENCIA:** CALLAO

UBICACIÓN: **ESTE:** 268428 **NORTE:** 8686638 **ZONA:** 18 L **ALTITUD:** 50 **PRECISIÓN GPS:** ± 3

DESCRIPCIÓN: Ubicado en la azotea del Hospital de Ventanilla, Av. Pedro Beltrán s/n Urb. Satélite, distrito de Ventanilla

PARÁMETROS: PM-10 y Metales en PM-10

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) | ΔPeso (μg) * | Concentración de partículas (μg/m ³) |
|----|------------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|--------------|--|
| 1 | PM-10 | 0201A.R19 | 08/04/2019 10:58 | 09/04/2019 10:58 | 1440 | 23,2 | 757,2 | 0,960 | 1,176 | 1694,02 | 1698,03 | 159400 | 93,87 |
| 2 | | 0205A.R19 | 11/04/2019 09:54 | 12/04/2019 10:04 | 1450 | 22,7 | 756,3 | 0,960 | 1,175 | 1704,33 | 1709,22 | 145100 | 84,89 |
| 3 | | 0209A.R19 | 16/04/2019 10:36 | 17/04/2019 10:40 | 1444 | 22,2 | 756,6 | 0,960 | 1,174 | 1695,83 | 1704,25 | 126400 | 74,17 |
| 4 | | 0213A.R19 | 24/04/2019 10:39 | 25/04/2019 10:19 | 1420 | 22,6 | 756,8 | 0,960 | 1,175 | 1668,78 | 1675,24 | 116700 | 69,66 |
| 5 | | 0217A.R19 | 25/04/2019 10:30 | 26/04/2019 10:32 | 1442 | 22,0 | 757,2 | 0,962 | 1,177 | 1697,23 | 1708,17 | 107500 | 62,93 |
| 6 | | 0221A.R19 | 26/04/2019 10:39 | 27/04/2019 10:48 | 1449 | 21,4 | 756,0 | 0,961 | 1,175 | 1702,29 | 1714,02 | 126600 | 73,86 |
| 1 | Metales en PM 10 | 0201A.R19 | 08/04/2019 10:58 | 09/04/2019 10:58 | 1440 | 23,2 | 757,2 | 0,960 | 1,176 | 1694,02 | 1698,03 | - | - |
| 2 | | 0205A.R19 | 11/04/2019 09:54 | 12/04/2019 10:04 | 1450 | 22,7 | 756,3 | 0,960 | 1,175 | 1704,33 | 1709,22 | - | - |
| 3 | | 0209A.R19 | 16/04/2019 10:36 | 17/04/2019 10:40 | 1444 | 22,2 | 756,6 | 0,960 | 1,174 | 1695,83 | 1704,25 | - | - |
| 4 | | 0213A.R19 | 24/04/2019 10:39 | 25/04/2019 10:19 | 1420 | 22,6 | 756,8 | 0,960 | 1,175 | 1668,78 | 1675,24 | - | - |
| 5 | | 0217A.R19 | 25/04/2019 10:30 | 26/04/2019 10:32 | 1442 | 22,0 | 757,2 | 0,962 | 1,177 | 1697,23 | 1708,17 | - | - |
| 6 | | 0221A.R19 | 26/04/2019 10:39 | 27/04/2019 10:48 | 1449 | 21,4 | 756,0 | 0,961 | 1,175 | 1702,29 | 1714,02 | - | - |

OBSERVACIONES:

(1) El cálculo de volumen estándar para material particulado, se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar), establecidas en el Protocolo de Monitoreo de la Calidad del aire y Gestión de los datos de la DIGESA (2005).

(2) El cálculo de volumen estándar para metales en PM₁₀ se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).

(*) Fuente: Informe de Ensayo N° ABR1202.R19 del laboratorio Certimin S.A.

"-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| RESULTADOS DE LABORATORIO | | | | | | | | |
|----------------------------------|--------|------------|------------|------------|------------|------------|------------|------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-6 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 835 | 1051 | 627 | 806 | 614 | 719 |
| Arsénico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 25 | 28 | 19 | 29 | 21 | 25 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 19 | 26 | 48 | <10 | 21 | 44 |
| Calcio | Ca | µg/mtra | 3955 | 3607 | 2940 | 3526 | 2759 | 3102 |
| Cadmio | Cd | µg/mtra | <2 | 2 | <2 | 2 | <2 | <2 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 57 | 33 | 72 | 29 | 55 | 58 |
| Cobre | Cu | µg/mtra | 85 | 130 | 73 | 158 | 84 | 64 |
| Hierro | Fe | µg/mtra | 1842 | 1892 | 1508 | 1639 | 1399 | 1593 |
| Potasio | K | µg/mtra | 819 | 788 | 764 | 573 | 520 | 619 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 1965 | 1676 | 1810 | 1193 | 1131 | 1308 |
| Manganeso | Mn | µg/mtra | 40 | 42 | 26 | 40 | 28 | 32 |
| Molibdeno | Mo | µg/mtra | <3 | 811 | <3 | 6 | 5 | <3 |
| Sodio | Na | µg/mtra | 11973 | 9779 | 11998 | 5978 | 6576 | 7307 |
| Níquel | Ni | µg/mtra | 13 | 16 | 22 | 27 | 22 | 13 |
| Fosforo | P | µg/mtra | 264 | 209 | 109 | 230 | 119 | 122 |
| Plomo | Pb | µg/mtra | 190 | 201 | 85 | 113 | 80 | 157 |
| Antimonio | Sb | µg/mtra | <9 | <9 | <9 | 17 | <9 | <9 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 1832 | 2083 | 1550 | 1932 | 1627 | 1776 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | <15 |
| Estroncio | Sr | µg/mtra | 21,7 | 20,1 | 18,9 | 22,8 | 14,7 | 16,8 |
| Titanio | Ti | µg/mtra | 35 | 39 | 26 | 36 | 27 | 32 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 33,9 | 29,4 | 54,7 | 51 | 42,5 | 27,3 |
| Zinc | Zn | µg/mtra | 218 | 251 | 110 | 292 | 136 | 206 |

<: Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1202.R19 del laboratorio Certimin S.A.

| CONCENTRACIÓN DE METALES | | | | | | | | |
|---|--------|-------------------|----------------|----------------|----------------|----------------|----------------|-------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-6 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Volumen estándar (m³) | | 1698,03 | 1709,22 | 1704,25 | 1675,24 | 1708,17 | 1714,02 | |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | µg/m ³ | 0,49 | 0,61 | 0,37 | 0,48 | 0,36 | 0,42 |
| Arsénico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,015 | 0,016 | 0,011 | 0,017 | 0,012 | 0,015 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Calcio | Ca | µg/m ³ | 2,33 | 2,11 | 1,73 | 2,10 | 1,62 | 1,81 |
| Cadmio | Cd | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,034 | 0,019 | 0,042 | 0,017 | 0,032 | 0,034 |
| Cobre | Cu | µg/m ³ | 0,050 | 0,076 | 0,043 | 0,094 | 0,049 | 0,037 |
| Hierro | Fe | µg/m ³ | 1,08 | 1,11 | 0,88 | 0,98 | 0,82 | 0,93 |
| Potasio | K | µg/m ³ | 0,482 | 0,461 | 0,448 | 0,342 | 0,304 | 0,361 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,16 | 0,98 | 1,06 | 0,71 | 0,66 | 0,76 |
| Manganeso | Mn | µg/m ³ | 0,024 | 0,025 | 0,015 | 0,024 | 0,016 | 0,019 |
| Molibdeno | Mo | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Sodio | Na | µg/m ³ | 7,05 | 5,72 | 7,04 | 3,57 | 3,85 | 4,26 |
| Níquel | Ni | µg/m ³ | 0,008 | N.D. | 0,013 | N.D. | 0,013 | 0,008 |
| Fosforo | P | µg/m ³ | 0,155 | 0,122 | 0,064 | 0,137 | 0,070 | 0,071 |
| Plomo | Pb | µg/m ³ | 0,112 | 0,118 | 0,050 | 0,067 | 0,047 | 0,092 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 1,08 | 1,22 | 0,91 | 1,15 | 0,95 | 1,04 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,013 | 0,012 | 0,011 | 0,014 | 0,009 | 0,010 |
| Titanio | Ti | µg/m ³ | 0,021 | 0,023 | 0,015 | 0,021 | 0,016 | 0,019 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,020 | 0,017 | 0,032 | 0,030 | 0,025 | 0,016 |
| Zinc | Zn | µg/m ³ | 0,128 | 0,147 | 0,065 | 0,174 | 0,080 | 0,120 |

Observación: Concentración de metales calculados a T=25 °C ó 298,15 °K

N.D.: No detectable

MONITOREO DE LA CALIDAD DEL AIRE HOJA DE CÁLCULO PARA ESTIMAR EL VOLUMEN ESTÁNDAR PARA METALES (10°C)

| | | | | | | | | | | |
|-------------------------------|--------------|--|---------------|---------------------|--------------|--------|-----------------|----|-----------------------|-----|
| ESTACIÓN DE MONITOREO: | | CA-VMP-6 | | PROCEDENCIA: | | CALLAO | | | | |
| UBICACIÓN: | ESTE: | 268428 | NORTE: | 8686638 | ZONA: | 18 L | ALTITUD: | 50 | PRECISIÓN GPS: | ± 3 |
| DESCRIPCIÓN: | | Ubicado en la azotea del Hospital de Ventanilla, Av. Pedro Beltrán s/n Urb. Satélite, distrito de Ventanilla | | | | | | | | |
| PARÁMETROS: | | Metales en PM-10 | | | | | | | | |

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) |
|----|------------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|
| 1 | Metales PM 10 | 0201A.R19 | 08/04/2019 10:58 | 09/04/2019 10:58 | 1440 | 23,2 | 757,2 | 0,960 | 1,176 | 1694,02 | 1612,60 |
| 2 | | 0205A.R19 | 11/04/2019 09:54 | 12/04/2019 10:04 | 1450 | 22,7 | 756,3 | 0,960 | 1,175 | 1704,33 | 1623,23 |
| 3 | | 0209A.R19 | 16/04/2019 10:36 | 17/04/2019 10:40 | 1444 | 22,2 | 756,6 | 0,960 | 1,174 | 1695,83 | 1618,51 |
| 4 | | 0213A.R19 | 24/04/2019 10:39 | 25/04/2019 10:19 | 1420 | 22,6 | 756,8 | 0,960 | 1,175 | 1668,78 | 1590,96 |
| 5 | | 0217A.R19 | 25/04/2019 10:30 | 26/04/2019 10:32 | 1442 | 22,0 | 757,2 | 0,962 | 1,177 | 1697,23 | 1622,23 |
| 6 | | 0221A.R19 | 26/04/2019 10:39 | 27/04/2019 10:48 | 1449 | 21,4 | 756,0 | 0,961 | 1,175 | 1702,29 | 1627,79 |

OBSERVACIONES:

(1) El cálculo de volumen estándar para metales en PM₁₀, se realizó en base a las condiciones de temperatura estándar (T= 10°C ó 283.15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).
 "-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| Metal medido en PM ₁₀ | | | RESULTADOS DE LABORATORIO | | | | | |
|----------------------------------|----|---------|---------------------------|------------|------------|------------|------------|------------|
| Unidad | | | CA-VMP-6 | | | | | |
| | | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 835 | 1051 | 627 | 806 | 614 | 719 |
| Arsénico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 25 | 28 | 19 | 29 | 21 | 25 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 19 | 26 | 48 | <10 | 21 | 44 |
| Calcio | Ca | µg/mtra | 3955 | 3607 | 2940 | 3526 | 2759 | 3102 |
| Cadmio | Cd | µg/mtra | <2 | 2 | <2 | 2 | <2 | <2 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 57 | 33 | 72 | 29 | 55 | 58 |
| Cobre | Cu | µg/mtra | 85 | 130 | 73 | 158 | 84 | 64 |
| Hierro | Fe | µg/mtra | 1842 | 1892 | 1508 | 1639 | 1399 | 1593 |
| Potasio | K | µg/mtra | 819 | 788 | 764 | 573 | 520 | 619 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 1965 | 1676 | 1810 | 1193 | 1131 | 1308 |
| Manganeso | Mn | µg/mtra | 40 | 42 | 26 | 40 | 28 | 32 |
| Molibdeno | Mo | µg/mtra | <3 | 811 | <3 | 6 | 5 | <3 |
| Sodio | Na | µg/mtra | 11973 | 9779 | 11998 | 5978 | 6576 | 7307 |
| Níquel | Ni | µg/mtra | 13 | 16 | 22 | 27 | 22 | 13 |
| Fosforo | P | µg/mtra | 264 | 209 | 109 | 230 | 119 | 122 |
| Plomo | Pb | µg/mtra | 190 | 201 | 85 | 113 | 80 | 157 |
| Antimonio | Sb | µg/mtra | <9 | <9 | <9 | 17 | <9 | <9 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 1832 | 2083 | 1550 | 1932 | 1627 | 1776 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | <15 |
| Estroncio | Sr | µg/mtra | 21,7 | 20,1 | 18,9 | 22,8 | 14,7 | 16,8 |
| Titanio | Ti | µg/mtra | 35 | 39 | 26 | 36 | 27 | 32 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 33,9 | 29,4 | 54,7 | 51 | 42,5 | 27,3 |
| Zinc | Zn | µg/mtra | 218 | 251 | 110 | 292 | 136 | 206 |

<: Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1202.R19 del laboratorio Certimin S.A.

| Metal medido en PM ₁₀ | | | CONCENTRACIÓN DE METALES | | | | | |
|---|----|-------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|
| Unidad | | | CA-VMP-6 | | | | | |
| | | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Volumen estándar (m³) | | | 1612,60 | 1623,23 | 1618,51 | 1590,96 | 1622,23 | 1627,79 |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | µg/m ³ | 0,52 | 0,65 | 0,39 | 0,51 | 0,38 | 0,44 |
| Arsénico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,016 | 0,017 | 0,012 | 0,018 | 0,013 | 0,015 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Calcio | Ca | µg/m ³ | 2,45 | 2,22 | 1,82 | 2,22 | 1,70 | 1,91 |
| Cadmio | Cd | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,035 | 0,020 | 0,044 | 0,018 | 0,034 | 0,036 |
| Cobre | Cu | µg/m ³ | 0,053 | 0,080 | 0,045 | 0,099 | 0,052 | 0,039 |
| Hierro | Fe | µg/m ³ | 1,14 | 1,17 | 0,93 | 1,03 | 0,86 | 0,98 |
| Potasio | K | µg/m ³ | 0,508 | 0,485 | 0,472 | 0,360 | 0,321 | 0,380 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,22 | 1,03 | 1,12 | 0,75 | 0,70 | 0,80 |
| Manganeso | Mn | µg/m ³ | 0,025 | 0,026 | 0,016 | 0,025 | 0,017 | 0,020 |
| Molibdeno | Mo | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Sodio | Na | µg/m ³ | 7,42 | 6,02 | 7,41 | 3,76 | 4,05 | 4,49 |
| Níquel | Ni | µg/m ³ | 0,008 | N.D. | 0,014 | N.D. | 0,014 | 0,008 |
| Fosforo | P | µg/m ³ | 0,164 | 0,129 | 0,067 | 0,145 | 0,073 | 0,075 |
| Plomo | Pb | µg/m ³ | 0,118 | 0,124 | 0,053 | 0,071 | 0,049 | 0,096 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 1,14 | 1,28 | 0,96 | 1,21 | 1,00 | 1,09 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,013 | 0,012 | 0,012 | 0,014 | 0,009 | 0,010 |
| Titanio | Ti | µg/m ³ | 0,022 | 0,024 | 0,016 | 0,023 | 0,017 | 0,020 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,021 | 0,018 | 0,034 | 0,032 | 0,026 | 0,017 |
| Zinc | Zn | µg/m ³ | 0,135 | 0,155 | 0,068 | 0,184 | 0,084 | 0,127 |

Observación: Concentración de metales calculados a T=10 °C ó 283,15 °K

N.D.: No detectable

DATOS GENERALES

| | | | | | |
|----------------|------------------------|-------------------------------|---------------|------------------------|-------------|
| CUC N°: | 0002-4-2019-401 | ESTACIÓN DE MONITOREO: | CA-VMP-7 | DÍAS EVALUADOS: | 6 |
| EQUIPO: | ESTACIÓN METEOROLÓGICA | | | | |
| MARCA: | Davis | MODELO: | Vantage Pro 2 | SERIE: | BB171204036 |

MEDICIONES PROMEDIO (DATOS DIÁRIOS)

| | | | | | | | |
|------------------------------------|----------------|------------------|---------------------------|------------------|------------------|---------------------------------|----------|
| DÍA 1 | INICIO: | 08/04/2019 11:23 | FINAL: | 09/04/2019 11:23 | PERIODO : | 24:00 horas | 1440 min |
| Datos horarios registrados: | | 24 horas | | | | | |
| Temperatura (°C): | | 23,6 | Presión (mm Hg): | | 753,5 | Humedad (%): 74 | |
| Precipitación (mm): | | 0 | Dirección del viento (°): | | - | Velocidad del Viento (m/s): 1,1 | |
| DÍA 2 | INICIO: | 11/04/2019 10:15 | FINAL: | 12/04/2019 10:22 | PERIODO : | 24:07 horas | 1447 min |
| Datos horarios registrados: | | 24 horas | | | | | |
| Temperatura (°C): | | 23,2 | Presión (mm Hg): | | 752,6 | Humedad (%): 73 | |
| Precipitación (mm): | | 0 | Dirección del viento (°): | | - | Velocidad del Viento (m/s): 1,0 | |
| DÍA 3 | INICIO: | 16/04/2019 10:55 | FINAL: | 17/04/2019 10:58 | PERIODO : | 24:03 horas | 1443 min |
| Datos horarios registrados: | | 24 horas | | | | | |
| Temperatura (°C): | | 23,5 | Presión (mm Hg): | | 752,9 | Humedad (%): 73 | |
| Precipitación (mm): | | 0 | Dirección del viento (°): | | - | Velocidad del Viento (m/s): 0,9 | |
| DÍA 4 | INICIO: | 24/04/2019 11:00 | FINAL: | 25/04/2019 10:46 | PERIODO : | 23:46 horas | 1426 min |
| Datos horarios registrados: | | 24 horas | | | | | |
| Temperatura (°C): | | 22,7 | Presión (mm Hg): | | 753,1 | Humedad (%): 77 | |
| Precipitación (mm): | | 0 | Dirección del viento (°): | | - | Velocidad del Viento (m/s): 0,9 | |
| DÍA 5 | INICIO: | 25/04/2019 10:55 | FINAL: | 26/04/2019 11:11 | PERIODO : | 24:16 horas | 1456 min |
| Datos horarios registrados: | | 24 horas | | | | | |
| Temperatura (°C): | | 22,8 | Presión (mm Hg): | | 753,5 | Humedad (%): 76 | |
| Precipitación (mm): | | 0 | Dirección del viento (°): | | - | Velocidad del Viento (m/s): 0,9 | |
| DÍA 6 | INICIO: | 26/04/2019 11:32 | FINAL: | 27/04/2019 11:18 | PERIODO : | 23:46 horas | 1426 min |
| Datos horarios registrados: | | 24 horas | | | | | |
| Temperatura (°C): | | 21,7 | Presión (mm Hg): | | 752,5 | Humedad (%): 77 | |
| Precipitación (mm): | | 0 | Dirección del viento (°): | | - | Velocidad del Viento (m/s): 0,9 | |



Organismo
de Evaluación
y Fiscalización
Ambiental

MONITOREO DE LA CALIDAD DEL AIRE HOJA DE CÁLCULO PARA ESTIMAR LAS CONCENTRACIONES DE MATERIAL PARTICULADO ALTO VOLUMEN

ESTACIÓN DE MONITOREO: CA-VMP-7 PROCEDENCIA: CALLAO

UBICACIÓN: ESTE: 268736 NORTE: 8687699 ZONA: 18 L ALTITUD: 86 PRECISIÓN GPS: ± 3

DESCRIPCIÓN: Ubicado en la azotea de la vivienda del asentamiento humano - A.H. Virgen de Guadalupe - 2da etapa, Mz. Y Lt. 28, aproximadamente a 80 m del A.H. Las Casuarinas, distrito Mi Perú

PARÁMETROS: PM-10 y Metales en PM-10

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) | ΔPeso (μg) * | Concentración de partículas (μg/m ³) |
|----|------------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|--------------|--|
| 1 | PM-10 | 0202A.R19 | 08/04/2019 11:23 | 09/04/2019 11:23 | 1440 | 23,6 | 753,5 | 0,957 | 1,176 | 1693,73 | 1687,16 | 208100 | 123,34 |
| 2 | | 0206A.R19 | 11/04/2019 10:15 | 12/04/2019 10:22 | 1447 | 23,2 | 752,6 | 0,959 | 1,178 | 1704,28 | 1697,93 | 166000 | 97,77 |
| 3 | | 0210A.R19 | 16/04/2019 10:55 | 17/04/2019 10:58 | 1443 | 23,5 | 752,9 | 0,960 | 1,180 | 1702,74 | 1695,36 | 146800 | 86,59 |
| 4 | | 0214A.R19 | 24/04/2019 11:00 | 25/04/2019 10:46 | 1426 | 22,7 | 753,1 | 0,961 | 1,179 | 1681,82 | 1679,51 | 123200 | 73,35 |
| 5 | | 0218A.R19 | 25/04/2019 10:55 | 26/04/2019 11:11 | 1456 | 22,8 | 753,5 | 0,966 | 1,187 | 1727,69 | 1725,65 | 107500 | 62,30 |
| 6 | | 0222A.R19 | 26/04/2019 11:32 | 27/04/2019 11:18 | 1426 | 21,7 | 752,5 | 0,961 | 1,178 | 1679,19 | 1681,22 | 134900 | 80,24 |
| 1 | Metales en PM 10 | 0202A.R19 | 08/04/2019 11:23 | 09/04/2019 11:23 | 1440 | 23,6 | 753,5 | 0,957 | 1,176 | 1693,73 | 1687,16 | - | - |
| 2 | | 0206A.R19 | 11/04/2019 10:15 | 12/04/2019 10:22 | 1447 | 23,2 | 752,6 | 0,959 | 1,178 | 1704,28 | 1697,93 | - | - |
| 3 | | 0210A.R19 | 16/04/2019 10:55 | 17/04/2019 10:58 | 1443 | 23,5 | 752,9 | 0,960 | 1,180 | 1702,74 | 1695,36 | - | - |
| 4 | | 0214A.R19 | 24/04/2019 11:00 | 25/04/2019 10:46 | 1426 | 22,7 | 753,1 | 0,961 | 1,179 | 1681,82 | 1679,51 | - | - |
| 5 | | 0218A.R19 | 25/04/2019 10:55 | 26/04/2019 11:11 | 1456 | 22,8 | 753,5 | 0,966 | 1,187 | 1727,69 | 1725,65 | - | - |
| 6 | | 0222A.R19 | 26/04/2019 11:32 | 27/04/2019 11:18 | 1426 | 21,7 | 752,5 | 0,961 | 1,178 | 1679,19 | 1681,22 | - | - |

OBSERVACIONES:

(1) El cálculo de volumen estándar para material particulado, se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar), establecidas en el Protocolo de Monitoreo de la Calidad del aire y Gestión de los datos de la DIGESA (2005).

(2) El cálculo de volumen estándar para metales en PM₁₀ se realizó en base a las condiciones de temperatura estándar (T= 25°C ó 298,15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).

(*) Fuente: Informe de Ensayo N° ABR1202.R19 del laboratorio Certimin S.A.

"-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| Metal medido en PM ₁₀ | | Unidad | RESULTADOS DE LABORATORIO | | | | | |
|----------------------------------|----|---------|---------------------------|------------|------------|------------|------------|------------|
| | | | CA-VMP-7 | | | | | |
| | | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 1151 | 1244 | 986 | 1188 | 735 | 718 |
| Arsénico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 29 | 32 | 23 | 29 | 19 | 22 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 11 | <10 | <10 | 20 | <10 | 60 |
| Calcio | Ca | µg/mtra | 5078 | 4495 | 3126 | 3886 | 2903 | 3393 |
| Cadmio | Cd | µg/mtra | 3 | 3 | <2 | 3 | 3 | 3 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 40 | 52 | 57 | 69 | 59 | 46 |
| Cobre | Cu | µg/mtra | 149 | 213 | 116 | 241 | 94 | 160 |
| Hierro | Fe | µg/mtra | 2708 | 2487 | 1961 | 2503 | 1578 | 1583 |
| Potasio | K | µg/mtra | 831 | 779 | 697 | 632 | 465 | 611 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 1988 | 1747 | 1619 | 1299 | 1070 | 1293 |
| Manganeso | Mn | µg/mtra | 62 | 56 | 42 | 55 | 37 | 38 |
| Molibdèno | Mo | µg/mtra | 6 | 176 | <3 | 22 | 16 | 20 |
| Sodio | Na | µg/mtra | 10601 | 8811 | 9182 | 5848 | 5329 | 6815 |
| Níquel | Ni | µg/mtra | 17 | 23 | 24 | 34 | 16 | 20 |
| Fosforo | P | µg/mtra | 492 | 327 | 163 | 322 | 175 | 261 |
| Plomo | Pb | µg/mtra | 217 | 485 | 99 | 396 | 192 | 219 |
| Antimonio | Sb | µg/mtra | 10 | 32 | <9 | 28 | <9 | 21 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 2284 | 2654 | 2364 | 2621 | 1608 | 1436 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | <15 |
| Estroncio | Sr | µg/mtra | 22,9 | 22 | 17,3 | 17,2 | 13,8 | 16 |
| Titanio | Ti | µg/mtra | 50 | 53 | 46 | 52 | 28 | 27 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 35,9 | 42 | 53 | 71,6 | 40,4 | 38,7 |
| Zinc | Zn | µg/mtra | 433 | 391 | 157 | 360 | 272 | 336 |

<- Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1202.R19 del laboratorio Certimin S.A.

| Metal medido en PM ₁₀ | | Unidad | CONCENTRACIÓN DE METALES | | | | | |
|------------------------------------|----|-------------------|--------------------------|------------|------------|------------|------------|------------|
| | | | CA-VMP-7 | | | | | |
| | | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Volumen estándar (m ³) | | | 1687,16 | 1697,93 | 1695,36 | 1679,51 | 1725,65 | 1681,22 |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | µg/m ³ | 0,68 | 0,73 | 0,58 | 0,71 | 0,43 | 0,43 |
| Arsénico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,017 | 0,019 | 0,014 | 0,017 | 0,011 | 0,013 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Calcio | Ca | µg/m ³ | 3,01 | 2,65 | 1,84 | 2,31 | 1,68 | 2,02 |
| Cadmio | Cd | µg/m ³ | N.D. | N.D. | N.D. | N.D. | 0,002 | N.D. |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,024 | 0,031 | 0,034 | 0,041 | 0,034 | 0,027 |
| Cobre | Cu | µg/m ³ | 0,088 | 0,125 | 0,068 | 0,143 | 0,054 | 0,095 |
| Hierro | Fe | µg/m ³ | 1,61 | 1,46 | 1,16 | 1,49 | 0,91 | 0,94 |
| Potasio | K | µg/m ³ | 0,493 | 0,459 | 0,411 | 0,376 | 0,269 | 0,363 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,18 | 1,03 | 0,95 | 0,77 | 0,62 | 0,77 |
| Manganeso | Mn | µg/m ³ | 0,037 | 0,033 | 0,025 | 0,033 | 0,021 | 0,023 |
| Molibdèno | Mo | µg/m ³ | 0,004 | N.D. | N.D. | N.D. | N.D. | 0,012 |
| Sodio | Na | µg/m ³ | 6,28 | 5,19 | 5,42 | 3,48 | 3,09 | 4,05 |
| Níquel | Ni | µg/m ³ | 0,010 | 0,014 | 0,014 | 0,020 | 0,009 | 0,012 |
| Fosforo | P | µg/m ³ | 0,292 | 0,193 | 0,096 | 0,192 | 0,101 | 0,155 |
| Plomo | Pb | µg/m ³ | 0,129 | 0,286 | 0,058 | 0,236 | 0,111 | 0,130 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 1,35 | 1,56 | 1,39 | 1,56 | 0,93 | 0,85 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,014 | 0,013 | 0,010 | 0,010 | 0,008 | 0,010 |
| Titanio | Ti | µg/m ³ | 0,030 | 0,031 | 0,027 | 0,031 | 0,016 | 0,016 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,021 | 0,025 | 0,031 | 0,043 | 0,023 | 0,023 |
| Zinc | Zn | µg/m ³ | 0,257 | 0,230 | 0,093 | 0,214 | 0,158 | 0,200 |

Observación: Concentración de metales calculados a T=25 °C ó 298,15 °K

N.D.: No detectable

MONITOREO DE LA CALIDAD DEL AIRE

HOJA DE CÁLCULO PARA ESTIMAR EL VOLUMEN ESTÁNDAR PARA METALES (10°C)

ESTACIÓN DE MONITOREO: CA-VMP-7 **PROCEDENCIA:** CALLAO

UBICACIÓN: **ESTE:** 268736 **NORTE:** 8687699 **ZONA:** 18 L **ALTITUD:** 86 **PRECISIÓN GPS:** ± 3

DESCRIPCIÓN: Ubicado en la azotea de la vivienda del asentamiento humano - A.H. Virgen de Guadalupe - 2da etapa, Mz. Y Lt. 28, aproximadamente a 80 m del A.H. Las Casuarinas, distrito Mi Perú

PARÁMETROS: Metales en PM-10

| N° | Parámetro | N° Filtro | Fecha Inicio | Fecha Final | Periodo (minutos) | Temperatura ambiental (°C) | Presión ambiental (mm Hg) | Po/Pa | Flujo de muestreo (m ³ /min) | Volumen muestreado real (m ³) | Volumen muestreado estándar (m ³) |
|----|---------------|-----------|------------------|------------------|-------------------|----------------------------|---------------------------|-------|---|---|---|
| 1 | Metales PM 10 | 0202A.R19 | 08/04/2019 11:23 | 09/04/2019 11:23 | 1440 | 23,6 | 753,5 | 0,957 | 1,176 | 1693,73 | 1602,28 |
| 2 | | 0206A.R19 | 11/04/2019 10:15 | 12/04/2019 10:22 | 1447 | 23,2 | 752,6 | 0,959 | 1,178 | 1704,28 | 1612,51 |
| 3 | | 0210A.R19 | 16/04/2019 10:55 | 17/04/2019 10:58 | 1443 | 23,5 | 752,9 | 0,960 | 1,180 | 1702,74 | 1610,07 |
| 4 | | 0214A.R19 | 24/04/2019 11:00 | 25/04/2019 10:46 | 1426 | 22,7 | 753,1 | 0,961 | 1,179 | 1681,82 | 1595,01 |
| 5 | | 0218A.R19 | 25/04/2019 10:55 | 26/04/2019 11:11 | 1456 | 22,8 | 753,5 | 0,966 | 1,187 | 1727,69 | 1638,83 |
| 6 | | 0222A.R19 | 26/04/2019 11:32 | 27/04/2019 11:18 | 1426 | 21,7 | 752,5 | 0,961 | 1,178 | 1679,19 | 1596,64 |

OBSERVACIONES:

(1) El cálculo de volumen estándar para metales en PM₁₀, se realizó en base a las condiciones de temperatura estándar (T= 10°C ó 283.15 °K) y presión estándar (760 mmHg ó 1013,25 mBar).
 "-" : No aplica.

NOMBRE DEL PROYECTO:

VIGILANCIA AMBIENTAL DE LA CALIDAD DEL AIRE EN EL ÁMBITO DE INFLUENCIA DE LA ZONA INDUSTRIAL DE VENTANILLA Y DISTRITO MI PERÚ, UBICADO EN LOS DISTRITOS DE VENTANILLA Y MI PERÚ, PROVINCIA CONSTITUCIONAL DEL CALLAO, DURANTE EL MES DE ABRIL 2019

| RESULTADOS DE LABORATORIO | | | | | | | | |
|----------------------------------|--------|------------|------------|------------|------------|------------|------------|------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-7 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Plata | Ag | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Aluminio | Al | µg/mtra | 1151 | 1244 | 986 | 1188 | 735 | 718 |
| Arsenico | As | µg/mtra | <9 | <9 | <9 | <9 | <9 | <9 |
| Bario | Ba | µg/mtra | 29 | 32 | 23 | 29 | 19 | 22 |
| Berilio | Be | µg/mtra | <1 | <1 | <1 | <1 | <1 | <1 |
| Bismuto | Bi | µg/mtra | <350 | <350 | <350 | <350 | <350 | <350 |
| Boro | B | µg/mtra | 11 | <10 | <10 | 20 | <10 | 60 |
| Calcio | Ca | µg/mtra | 5078 | 4495 | 3126 | 3886 | 2903 | 3393 |
| Cadmio | Cd | µg/mtra | 3 | 3 | <2 | 3 | 3 | 3 |
| Cobalto | Co | µg/mtra | <6 | <6 | <6 | <6 | <6 | <6 |
| Cromo | Cr | µg/mtra | 40 | 52 | 57 | 69 | 59 | 46 |
| Cobre | Cu | µg/mtra | 149 | 213 | 116 | 241 | 94 | 160 |
| Hierro | Fe | µg/mtra | 2708 | 2487 | 1961 | 2503 | 1578 | 1583 |
| Potasio | K | µg/mtra | 831 | 779 | 697 | 632 | 465 | 611 |
| Mercurio | Hg | µg/mtra | <20 | <20 | <20 | <20 | <20 | <20 |
| Litio | Li | µg/mtra | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesio | Mg | µg/mtra | 1988 | 1747 | 1619 | 1299 | 1070 | 1293 |
| Manganeso | Mn | µg/mtra | 62 | 56 | 42 | 55 | 37 | 38 |
| Molibdeno | Mo | µg/mtra | 6 | 176 | <3 | 22 | 16 | 20 |
| Sodio | Na | µg/mtra | 10601 | 8811 | 9182 | 5848 | 5329 | 6815 |
| Niquel | Ni | µg/mtra | 17 | 23 | 24 | 34 | 16 | 20 |
| Fosforo | P | µg/mtra | 492 | 327 | 163 | 322 | 175 | 261 |
| Plomo | Pb | µg/mtra | 217 | 485 | 99 | 396 | 192 | 219 |
| Antimonio | Sb | µg/mtra | 10 | 32 | <9 | 28 | <9 | 21 |
| Selenio | Se | µg/mtra | <55 | <55 | <55 | <55 | <55 | <55 |
| Silicio | Si | µg/mtra | 2284 | 2654 | 2364 | 2621 | 1608 | 1436 |
| Estaño | Sn | µg/mtra | <15 | <15 | <15 | <15 | <15 | <15 |
| Estroncio | Sr | µg/mtra | 22,9 | 22 | 17,3 | 17,2 | 13,8 | 16 |
| Titanio | Ti | µg/mtra | 50 | 53 | 46 | 52 | 28 | 27 |
| Talio | Tl | µg/mtra | <60 | <60 | <60 | <60 | <60 | <60 |
| Vanadio | V | µg/mtra | 35,9 | 42 | 53 | 71,6 | 40,4 | 38,7 |
| Zinc | Zn | µg/mtra | 433 | 391 | 157 | 360 | 272 | 336 |

<: Debajo del límite de detección

Fuente: Informe de Ensayo N° ABR1202.R19 del laboratorio Certimin S.A.

| CONCENTRACIÓN DE METALES | | | | | | | | |
|---|--------|-------------------|----------------|----------------|----------------|----------------|----------------|-------|
| Metal medido en PM ₁₀ | Unidad | CA-VMP-7 | | | | | | |
| | | 08/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Volumen estándar (m³) | | 1602,28 | 1612,51 | 1610,07 | 1595,01 | 1638,83 | 1596,64 | |
| Plata | Ag | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | µg/m ³ | 0,72 | 0,77 | 0,61 | 0,74 | 0,45 | 0,45 |
| Arsenico | As | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | µg/m ³ | 0,018 | 0,020 | 0,014 | 0,018 | 0,012 | 0,014 |
| Berilio | Be | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Calcio | Ca | µg/m ³ | 3,17 | 2,79 | 1,94 | 2,44 | 1,77 | 2,13 |
| Cadmio | Cd | µg/m ³ | N.D. | N.D. | N.D. | N.D. | 0,002 | N.D. |
| Cobalto | Co | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | µg/m ³ | 0,025 | 0,032 | 0,035 | 0,043 | 0,036 | 0,029 |
| Cobre | Cu | µg/m ³ | 0,093 | 0,132 | 0,072 | 0,151 | 0,057 | 0,100 |
| Hierro | Fe | µg/m ³ | 1,69 | 1,54 | 1,22 | 1,57 | 0,96 | 0,99 |
| Potasio | K | µg/m ³ | 0,519 | 0,483 | 0,433 | 0,396 | 0,284 | 0,383 |
| Mercurio | Hg | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | µg/m ³ | 1,24 | 1,08 | 1,01 | 0,81 | 0,65 | 0,81 |
| Manganeso | Mn | µg/m ³ | 0,039 | 0,035 | 0,026 | 0,034 | 0,023 | 0,024 |
| Molibdeno | Mo | µg/m ³ | 0,004 | N.D. | N.D. | N.D. | N.D. | 0,013 |
| Sodio | Na | µg/m ³ | 6,62 | 5,46 | 5,70 | 3,67 | 3,25 | 4,27 |
| Niquel | Ni | µg/m ³ | 0,011 | 0,014 | 0,015 | 0,021 | 0,010 | N.D. |
| Fosforo | P | µg/m ³ | 0,307 | 0,203 | 0,101 | 0,202 | 0,107 | 0,163 |
| Plomo | Pb | µg/m ³ | 0,135 | 0,301 | 0,061 | 0,248 | 0,117 | 0,137 |
| Antimonio | Sb | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | µg/m ³ | 1,43 | 1,65 | 1,47 | 1,64 | 0,98 | 0,90 |
| Estaño | Sn | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | µg/m ³ | 0,014 | 0,014 | 0,011 | 0,011 | 0,008 | 0,010 |
| Titanio | Ti | µg/m ³ | 0,031 | 0,033 | 0,029 | 0,033 | 0,017 | 0,017 |
| Talio | Tl | µg/m ³ | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | µg/m ³ | 0,022 | 0,026 | 0,033 | 0,045 | 0,025 | 0,024 |
| Zinc | Zn | µg/m ³ | 0,270 | 0,242 | 0,098 | 0,226 | 0,166 | 0,210 |

Observación: Concentración de metales calculados a T=10 °C ó 283,15 °K

N.D.: No detectable

29-0006

Thermo Scientific
Flow Look-Up Table for PM10 VFC
High Volume Air Sampler

Serial # P9308 X

Calibrated with Rootsmeter serial # 0438320

Date Calibrated: 05/08/15

USE OF LOOK-UP-TABLE FOR DETERMINATION OF FLOW RATE PM10 VFC High Volume Air Sampler

1. Determine and record atmospheric properties.
2. Operate sampler and allow to warm up. Perform leak test and make sure all gaskets are in place and that there are no leaks.
3. Read the differential pressure across the filter (P_f), inches of H₂O that has to be converted to mm Hg. Reading is taken with a manometer where one side is open to atmosphere and the other is connected to pressure tap on side of filter holder. Filter should be in place for this measurement.
4. Calculate pressure ratio, P_o / P_a $P_o / P_a = 1 - (P_f / P_a)$
 P_f and P_a should be in mm Hg
5. Look up flow rate in look up table. The first 4 pages are in Celsius and actual m³/min the last 4 pages are in Fahrenheit and actual cubic feet.

Example

(NOTE: Individual Look Up Tables will vary.)

1. Suppose the ambient conditions are:

Temperature: $T_a = 24\text{ }^\circ\text{C}$

Barometric Pressure: $P_a = 762\text{ mm Hg}$ (this must be station pressure which is not corrected to sea level)

2. Assume system is allowed to warm up for stable operation.
3. Measure filter pressure differential, P_f . This reading is the set-up reading plus pick-up reading divided by 2 for an average reading. This is taken with a differential manometer with one side of the manometer connected to the stagnation tap on the filter holder (or the Bulkhead Fitting) and the other side open to the atmosphere. Filter must be in place during this measurement.

Assume that:

Set-up Reading: $P_f = 18.60\text{ in H}_2\text{O}$

Pick-up Reading: $P_f = 19.80\text{ in H}_2\text{O}$

$P_f = (18.60 + 19.80)/2 = 19.20\text{ in H}_2\text{O}$.

4. Convert $P_f =$ to same units as barometric pressure.

$$P_f = 19.20 \text{ in H}_2\text{O} / 13.61 \times 25.4 = 35.83 \text{ mm Hg}$$

$$P_f = 35.83 \text{ mm Hg}$$

5. Calculate pressure ratio.

$$P_o/P_a = 1 - (P_f/P_a)$$

NOTE: P_f and P_a MUST HAVE CONSISTENT UNITS

$$P_o/P_a = 1 - (35.83 / 762) \quad P_o/P_a = .953$$

6. Look up Flow Rate from table.

Table 1 (pages 1 – 4) is set up with temperature in $^{\circ}\text{C}$ and the Flow Rate is read in units of m^3/min (actual, ACMM). In table 2 (pages 5 – 8) the temperature is in $^{\circ}\text{F}$ and Flow Rate is read in ft^3/min (actual, ACFM).

- a) For the example we will use Table 1.

Locate the temperature and pressure ratio entries nearest the conditions of:

$$T_a = 24^{\circ}\text{C}$$

$$P_o/P_a = .953$$

Example: Look-Up Table for Actual Flow Rate in Units of m^3/min

| | Temperature $^{\circ}\text{C}$ | | | | |
|-----------|--------------------------------|--------------|-------|-------|-------|
| P_o/P_a | 22 | 24 | 26 | 28 | 30 |
| 0.950 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 |
| 0.951 | 1.144 | 1.147 | 1.150 | 1.154 | 1.157 |
| 0.952 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 |
| 0.953 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 |
| 0.954 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 |
| 0.955 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 |

- b) The reading of flow rate is: $Q_a = 1.150 \text{ m}^3/\text{min}$ (actual)

If your P_o/P_a number is not in look up table ie; $>.979$ then interpolate.

7. Determine flow rate in terms of standard air.

$$Q_{\text{std}} = 1.150 \text{ m}^3 / \text{min} \left(\frac{762 \text{ mm Hg}}{760 \text{ mm Hg}} \right) \left(\frac{298\text{K}}{(273 + 24) \text{K}} \right)$$

$$Q_{\text{std}} = 1.157 \text{ std m}^3/\text{min}$$

It is always a good idea to contact the lab that you are dealing with to determine what information that they need including actual or standard air with respect to flow rate.

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | -32 | -30 | -28 | -26 | -24 | -22 | -20 | -18 | -16 | -14 | -12 | -10 | -8 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.041 | 1.045 | 1.048 | 1.052 | 1.056 | 1.060 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.085 | 0.930 |
| 0.931 | 1.042 | 1.046 | 1.050 | 1.053 | 1.057 | 1.061 | 1.065 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 0.931 |
| 0.932 | 1.043 | 1.047 | 1.051 | 1.054 | 1.058 | 1.062 | 1.066 | 1.069 | 1.073 | 1.077 | 1.081 | 1.084 | 1.088 | 0.932 |
| 0.933 | 1.044 | 1.048 | 1.052 | 1.056 | 1.059 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 0.933 |
| 0.934 | 1.045 | 1.049 | 1.053 | 1.057 | 1.061 | 1.064 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.090 | 0.934 |
| 0.935 | 1.047 | 1.050 | 1.054 | 1.058 | 1.062 | 1.066 | 1.069 | 1.073 | 1.077 | 1.081 | 1.084 | 1.088 | 1.092 | 0.935 |
| 0.936 | 1.048 | 1.052 | 1.055 | 1.059 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 0.936 |
| 0.937 | 1.049 | 1.053 | 1.057 | 1.060 | 1.064 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 0.937 |
| 0.938 | 1.050 | 1.054 | 1.058 | 1.062 | 1.065 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 1.088 | 1.092 | 1.095 | 0.938 |
| 0.939 | 1.051 | 1.055 | 1.059 | 1.063 | 1.067 | 1.070 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 1.096 | 0.939 |
| 0.940 | 1.053 | 1.056 | 1.060 | 1.064 | 1.068 | 1.072 | 1.075 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 0.940 |
| 0.941 | 1.054 | 1.058 | 1.061 | 1.065 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 1.088 | 1.092 | 1.095 | 1.099 | 0.941 |
| 0.942 | 1.055 | 1.059 | 1.063 | 1.066 | 1.070 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 1.096 | 1.100 | 0.942 |
| 0.943 | 1.056 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 1.101 | 0.943 |
| 0.944 | 1.057 | 1.061 | 1.065 | 1.069 | 1.073 | 1.076 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 1.099 | 1.103 | 0.944 |
| 0.945 | 1.058 | 1.062 | 1.066 | 1.070 | 1.074 | 1.078 | 1.081 | 1.085 | 1.089 | 1.093 | 1.096 | 1.100 | 1.104 | 0.945 |
| 0.946 | 1.060 | 1.063 | 1.067 | 1.071 | 1.075 | 1.079 | 1.083 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 0.946 |
| 0.947 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 1.099 | 1.103 | 1.106 | 0.947 |
| 0.948 | 1.062 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 1.085 | 1.089 | 1.093 | 1.096 | 1.100 | 1.104 | 1.108 | 0.948 |
| 0.949 | 1.063 | 1.067 | 1.071 | 1.075 | 1.079 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 1.109 | 0.949 |
| 0.950 | 1.064 | 1.068 | 1.072 | 1.076 | 1.080 | 1.084 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.106 | 1.110 | 0.950 |
| 0.951 | 1.065 | 1.069 | 1.073 | 1.077 | 1.081 | 1.085 | 1.089 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.111 | 0.951 |
| 0.952 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 0.952 |
| 0.953 | 1.068 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 1.114 | 0.953 |
| 0.954 | 1.069 | 1.073 | 1.077 | 1.081 | 1.085 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 0.954 |
| 0.955 | 1.070 | 1.074 | 1.078 | 1.082 | 1.086 | 1.090 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 0.955 |
| 0.956 | 1.071 | 1.075 | 1.079 | 1.083 | 1.087 | 1.091 | 1.095 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.117 | 0.956 |
| 0.957 | 1.073 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 1.119 | 0.957 |
| 0.958 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 0.958 |
| 0.959 | 1.075 | 1.079 | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 0.959 |
| 0.960 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.122 | 0.960 |
| 0.961 | 1.077 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.108 | 1.112 | 1.116 | 1.120 | 1.124 | 0.961 |
| 0.962 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.121 | 1.125 | 0.962 |
| 0.963 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 0.963 |
| 0.964 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 0.964 |
| 0.965 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 1.128 | 0.965 |
| 0.966 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.114 | 1.118 | 1.122 | 1.126 | 1.130 | 0.966 |
| 0.967 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.119 | 1.123 | 1.127 | 1.131 | 0.967 |
| 0.968 | 1.086 | 1.090 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 0.968 |
| 0.969 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.106 | 1.110 | 1.114 | 1.118 | 1.122 | 1.126 | 1.130 | 1.133 | 0.969 |
| 0.970 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.115 | 1.119 | 1.123 | 1.127 | 1.131 | 1.135 | 0.970 |
| 0.971 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.124 | 1.128 | 1.132 | 1.136 | 0.971 |
| 0.972 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.122 | 1.126 | 1.129 | 1.133 | 1.137 | 0.972 |
| 0.973 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 1.127 | 1.131 | 1.134 | 1.138 | 0.973 |
| 0.974 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.124 | 1.128 | 1.132 | 1.136 | 1.140 | 0.974 |
| 0.975 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 1.129 | 1.133 | 1.137 | 1.141 | 0.975 |
| 0.976 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 1.127 | 1.130 | 1.134 | 1.138 | 1.142 | 0.976 |
| 0.977 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.124 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 0.977 |
| 0.978 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 1.129 | 1.133 | 1.137 | 1.141 | 1.144 | 0.978 |
| 0.979 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 1.130 | 1.134 | 1.138 | 1.142 | 1.146 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | -6 | -4 | -2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.089 | 1.093 | 1.096 | 1.100 | 1.103 | 1.107 | 1.111 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 1.132 | 0.930 |
| 0.931 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 1.108 | 1.112 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 1.133 | 0.931 |
| 0.932 | 1.092 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 0.932 |
| 0.933 | 1.093 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 1.132 | 1.135 | 0.933 |
| 0.934 | 1.094 | 1.098 | 1.101 | 1.105 | 1.108 | 1.112 | 1.116 | 1.119 | 1.123 | 1.126 | 1.130 | 1.133 | 1.137 | 0.934 |
| 0.935 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 0.935 |
| 0.936 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.125 | 1.129 | 1.132 | 1.136 | 1.139 | 0.936 |
| 0.937 | 1.098 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.119 | 1.123 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 0.937 |
| 0.938 | 1.099 | 1.103 | 1.106 | 1.110 | 1.113 | 1.117 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 1.138 | 1.142 | 0.938 |
| 0.939 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.125 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 0.939 |
| 0.940 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.130 | 1.134 | 1.137 | 1.141 | 1.144 | 0.940 |
| 0.941 | 1.103 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 1.124 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 1.146 | 0.941 |
| 0.942 | 1.104 | 1.108 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 1.147 | 0.942 |
| 0.943 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.130 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 0.943 |
| 0.944 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 0.944 |
| 0.945 | 1.108 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 1.151 | 0.945 |
| 0.946 | 1.109 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 1.149 | 1.152 | 0.946 |
| 0.947 | 1.110 | 1.114 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 0.947 |
| 0.948 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.140 | 1.144 | 1.148 | 1.151 | 1.155 | 0.948 |
| 0.949 | 1.112 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 0.949 |
| 0.950 | 1.114 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 0.950 |
| 0.951 | 1.115 | 1.119 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.159 | 0.951 |
| 0.952 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.153 | 1.156 | 1.160 | 0.952 |
| 0.953 | 1.117 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.139 | 1.143 | 1.147 | 1.150 | 1.154 | 1.158 | 1.161 | 0.953 |
| 0.954 | 1.119 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.141 | 1.144 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 0.954 |
| 0.955 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.164 | 0.955 |
| 0.956 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 0.956 |
| 0.957 | 1.122 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.163 | 1.166 | 0.957 |
| 0.958 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.149 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 0.958 |
| 0.959 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.165 | 1.169 | 0.959 |
| 0.960 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 0.960 |
| 0.961 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 0.961 |
| 0.962 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.165 | 1.169 | 1.173 | 0.962 |
| 0.963 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.167 | 1.170 | 1.174 | 0.963 |
| 0.964 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 1.175 | 0.964 |
| 0.965 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 0.965 |
| 0.966 | 1.133 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 0.966 |
| 0.967 | 1.135 | 1.138 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 1.175 | 1.179 | 0.967 |
| 0.968 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 1.177 | 1.180 | 0.968 |
| 0.969 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 1.182 | 0.969 |
| 0.970 | 1.138 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 0.970 |
| 0.971 | 1.140 | 1.143 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.184 | 0.971 |
| 0.972 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 1.182 | 1.185 | 0.972 |
| 0.973 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 1.187 | 0.973 |
| 0.974 | 1.143 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.184 | 1.188 | 0.974 |
| 0.975 | 1.145 | 1.148 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.175 | 1.178 | 1.182 | 1.186 | 1.189 | 0.975 |
| 0.976 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.180 | 1.183 | 1.187 | 1.191 | 0.976 |
| 0.977 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.185 | 1.188 | 1.192 | 0.977 |
| 0.978 | 1.148 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.175 | 1.178 | 1.182 | 1.186 | 1.189 | 1.193 | 0.978 |
| 0.979 | 1.150 | 1.153 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.180 | 1.183 | 1.187 | 1.191 | 1.194 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 | 1.166 | 1.169 | 0.930 |
| 0.931 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 1.160 | 1.164 | 1.167 | 1.170 | 0.931 |
| 0.932 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.168 | 1.172 | 0.932 |
| 0.933 | 1.132 | 1.135 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 0.933 |
| 0.934 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 1.151 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 0.934 |
| 0.935 | 1.135 | 1.138 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.172 | 1.176 | 0.935 |
| 0.936 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 0.936 |
| 0.937 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 0.937 |
| 0.938 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 0.938 |
| 0.939 | 1.140 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 0.939 |
| 0.940 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 0.940 |
| 0.941 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 0.941 |
| 0.942 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 0.942 |
| 0.943 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 1.183 | 1.186 | 0.943 |
| 0.944 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 0.944 |
| 0.945 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 0.945 |
| 0.946 | 1.149 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 1.187 | 1.190 | 0.946 |
| 0.947 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 0.947 |
| 0.948 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.189 | 1.193 | 0.948 |
| 0.949 | 1.152 | 1.156 | 1.159 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 0.949 |
| 0.950 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 0.950 |
| 0.951 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.193 | 1.197 | 0.951 |
| 0.952 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 0.952 |
| 0.953 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 0.953 |
| 0.954 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 0.954 |
| 0.955 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 0.955 |
| 0.956 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 0.956 |
| 0.957 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 0.957 |
| 0.958 | 1.164 | 1.167 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 0.958 |
| 0.959 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.207 | 0.959 |
| 0.960 | 1.166 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 0.960 |
| 0.961 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 0.961 |
| 0.962 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 0.962 |
| 0.963 | 1.170 | 1.174 | 1.177 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 0.963 |
| 0.964 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 0.964 |
| 0.965 | 1.173 | 1.176 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 0.965 |
| 0.966 | 1.174 | 1.178 | 1.181 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 0.966 |
| 0.967 | 1.175 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 0.967 |
| 0.968 | 1.177 | 1.180 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 0.968 |
| 0.969 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 0.969 |
| 0.970 | 1.179 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 0.970 |
| 0.971 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 0.971 |
| 0.972 | 1.182 | 1.185 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 0.972 |
| 0.973 | 1.183 | 1.187 | 1.190 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.223 | 1.226 | 0.973 |
| 0.974 | 1.184 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 0.974 |
| 0.975 | 1.186 | 1.189 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.229 | 0.975 |
| 0.976 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 0.976 |
| 0.977 | 1.188 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 1.231 | 0.977 |
| 0.978 | 1.189 | 1.193 | 1.197 | 1.200 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.226 | 1.229 | 1.233 | 0.978 |
| 0.979 | 1.191 | 1.194 | 1.198 | 1.202 | 1.205 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 1.234 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 | 1.166 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 0.930 |
| 0.931 | 1.147 | 1.150 | 1.154 | 1.157 | 1.160 | 1.164 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 1.187 | 0.931 |
| 0.932 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 1.182 | 1.185 | 1.188 | 0.932 |
| 0.933 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 1.190 | 0.933 |
| 0.934 | 1.151 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 1.178 | 1.181 | 1.184 | 1.188 | 1.191 | 0.934 |
| 0.935 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 0.935 |
| 0.936 | 1.153 | 1.157 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 1.194 | 0.936 |
| 0.937 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 1.182 | 1.185 | 1.188 | 1.192 | 1.195 | 0.937 |
| 0.938 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 1.190 | 1.193 | 1.196 | 0.938 |
| 0.939 | 1.157 | 1.161 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.184 | 1.188 | 1.191 | 1.194 | 1.198 | 0.939 |
| 0.940 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 1.196 | 1.199 | 0.940 |
| 0.941 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 1.194 | 1.197 | 1.200 | 0.941 |
| 0.942 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.188 | 1.192 | 1.195 | 1.198 | 1.202 | 0.942 |
| 0.943 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.196 | 1.200 | 1.203 | 0.943 |
| 0.944 | 1.164 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.194 | 1.198 | 1.201 | 1.204 | 0.944 |
| 0.945 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 1.196 | 1.199 | 1.202 | 1.206 | 0.945 |
| 0.946 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.200 | 1.204 | 1.207 | 0.946 |
| 0.947 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 0.947 |
| 0.948 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.206 | 1.210 | 0.948 |
| 0.949 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.204 | 1.208 | 1.211 | 0.949 |
| 0.950 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 0.950 |
| 0.951 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.210 | 1.214 | 0.951 |
| 0.952 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.208 | 1.212 | 1.215 | 0.952 |
| 0.953 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 0.953 |
| 0.954 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 0.954 |
| 0.955 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.212 | 1.216 | 1.219 | 0.955 |
| 0.956 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 0.956 |
| 0.957 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 0.957 |
| 0.958 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.216 | 1.220 | 1.223 | 0.958 |
| 0.959 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 0.959 |
| 0.960 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 0.960 |
| 0.961 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.220 | 1.224 | 1.227 | 0.961 |
| 0.962 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.229 | 0.962 |
| 0.963 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 0.963 |
| 0.964 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.224 | 1.228 | 1.231 | 0.964 |
| 0.965 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 1.229 | 1.233 | 0.965 |
| 0.966 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 1.231 | 1.234 | 0.966 |
| 0.967 | 1.193 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.228 | 1.232 | 1.235 | 0.967 |
| 0.968 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 1.233 | 1.237 | 0.968 |
| 0.969 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 1.231 | 1.235 | 1.238 | 0.969 |
| 0.970 | 1.197 | 1.201 | 1.204 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 1.229 | 1.233 | 1.236 | 1.239 | 0.970 |
| 0.971 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 1.234 | 1.237 | 1.241 | 0.971 |
| 0.972 | 1.200 | 1.203 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 1.232 | 1.235 | 1.239 | 1.242 | 0.972 |
| 0.973 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.223 | 1.226 | 1.230 | 1.233 | 1.237 | 1.240 | 1.243 | 0.973 |
| 0.974 | 1.202 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 1.231 | 1.234 | 1.238 | 1.241 | 1.245 | 0.974 |
| 0.975 | 1.204 | 1.207 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.229 | 1.232 | 1.236 | 1.239 | 1.243 | 1.246 | 0.975 |
| 0.976 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 1.234 | 1.237 | 1.241 | 1.244 | 1.247 | 0.976 |
| 0.977 | 1.206 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 1.231 | 1.235 | 1.238 | 1.242 | 1.245 | 1.249 | 0.977 |
| 0.978 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.226 | 1.229 | 1.233 | 1.236 | 1.240 | 1.243 | 1.247 | 1.250 | 0.978 |
| 0.979 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 1.234 | 1.238 | 1.241 | 1.245 | 1.248 | 1.252 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | -12 | -8 | -4 | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 37.26 | 37.41 | 37.55 | 37.70 | 37.84 | 37.99 | 38.13 | 38.27 | 38.42 | 38.56 | 38.70 | 38.84 | 38.98 | 0.930 |
| 0.931 | 37.30 | 37.45 | 37.59 | 37.74 | 37.89 | 38.03 | 38.17 | 38.32 | 38.46 | 38.60 | 38.74 | 38.89 | 39.03 | 0.931 |
| 0.932 | 37.34 | 37.49 | 37.64 | 37.78 | 37.93 | 38.07 | 38.22 | 38.36 | 38.50 | 38.65 | 38.79 | 38.93 | 39.07 | 0.932 |
| 0.933 | 37.38 | 37.53 | 37.68 | 37.83 | 37.97 | 38.12 | 38.26 | 38.40 | 38.55 | 38.69 | 38.83 | 38.97 | 39.11 | 0.933 |
| 0.934 | 37.43 | 37.57 | 37.72 | 37.87 | 38.01 | 38.16 | 38.30 | 38.45 | 38.59 | 38.73 | 38.88 | 39.02 | 39.16 | 0.934 |
| 0.935 | 37.47 | 37.62 | 37.76 | 37.91 | 38.06 | 38.20 | 38.35 | 38.49 | 38.63 | 38.78 | 38.92 | 39.06 | 39.20 | 0.935 |
| 0.936 | 37.51 | 37.66 | 37.81 | 37.95 | 38.10 | 38.25 | 38.39 | 38.53 | 38.68 | 38.82 | 38.96 | 39.11 | 39.25 | 0.936 |
| 0.937 | 37.55 | 37.70 | 37.85 | 38.00 | 38.14 | 38.29 | 38.43 | 38.58 | 38.72 | 38.86 | 39.01 | 39.15 | 39.29 | 0.937 |
| 0.938 | 37.60 | 37.74 | 37.89 | 38.04 | 38.19 | 38.33 | 38.48 | 38.62 | 38.76 | 38.91 | 39.05 | 39.19 | 39.33 | 0.938 |
| 0.939 | 37.64 | 37.79 | 37.93 | 38.08 | 38.23 | 38.37 | 38.52 | 38.66 | 38.81 | 38.95 | 39.09 | 39.24 | 39.38 | 0.939 |
| 0.940 | 37.68 | 37.83 | 37.98 | 38.12 | 38.27 | 38.42 | 38.56 | 38.71 | 38.85 | 39.00 | 39.14 | 39.28 | 39.42 | 0.940 |
| 0.941 | 37.72 | 37.87 | 38.02 | 38.17 | 38.31 | 38.46 | 38.61 | 38.75 | 38.90 | 39.04 | 39.18 | 39.32 | 39.47 | 0.941 |
| 0.942 | 37.76 | 37.91 | 38.06 | 38.21 | 38.36 | 38.50 | 38.65 | 38.79 | 38.94 | 39.08 | 39.23 | 39.37 | 39.51 | 0.942 |
| 0.943 | 37.81 | 37.96 | 38.10 | 38.25 | 38.40 | 38.55 | 38.69 | 38.84 | 38.98 | 39.13 | 39.27 | 39.41 | 39.56 | 0.943 |
| 0.944 | 37.85 | 38.00 | 38.15 | 38.30 | 38.44 | 38.59 | 38.74 | 38.88 | 39.03 | 39.17 | 39.31 | 39.46 | 39.60 | 0.944 |
| 0.945 | 37.89 | 38.04 | 38.19 | 38.34 | 38.49 | 38.63 | 38.78 | 38.92 | 39.07 | 39.21 | 39.36 | 39.50 | 39.64 | 0.945 |
| 0.946 | 37.93 | 38.08 | 38.23 | 38.38 | 38.53 | 38.68 | 38.82 | 38.97 | 39.11 | 39.26 | 39.40 | 39.54 | 39.69 | 0.946 |
| 0.947 | 37.98 | 38.13 | 38.27 | 38.42 | 38.57 | 38.72 | 38.87 | 39.01 | 39.16 | 39.30 | 39.45 | 39.59 | 39.73 | 0.947 |
| 0.948 | 38.02 | 38.17 | 38.32 | 38.47 | 38.61 | 38.76 | 38.91 | 39.05 | 39.20 | 39.34 | 39.49 | 39.63 | 39.78 | 0.948 |
| 0.949 | 38.06 | 38.21 | 38.36 | 38.51 | 38.66 | 38.80 | 38.95 | 39.10 | 39.24 | 39.39 | 39.53 | 39.68 | 39.82 | 0.949 |
| 0.950 | 38.10 | 38.25 | 38.40 | 38.55 | 38.70 | 38.85 | 38.99 | 39.14 | 39.29 | 39.43 | 39.58 | 39.72 | 39.86 | 0.950 |
| 0.951 | 38.14 | 38.29 | 38.44 | 38.59 | 38.74 | 38.89 | 39.04 | 39.18 | 39.33 | 39.48 | 39.62 | 39.77 | 39.91 | 0.951 |
| 0.952 | 38.19 | 38.34 | 38.49 | 38.64 | 38.79 | 38.93 | 39.08 | 39.23 | 39.37 | 39.52 | 39.66 | 39.81 | 39.95 | 0.952 |
| 0.953 | 38.23 | 38.38 | 38.53 | 38.68 | 38.83 | 38.98 | 39.12 | 39.27 | 39.42 | 39.56 | 39.71 | 39.85 | 40.00 | 0.953 |
| 0.954 | 38.27 | 38.42 | 38.57 | 38.72 | 38.87 | 39.02 | 39.17 | 39.31 | 39.46 | 39.61 | 39.75 | 39.90 | 40.04 | 0.954 |
| 0.955 | 38.31 | 38.46 | 38.62 | 38.76 | 38.91 | 39.06 | 39.21 | 39.36 | 39.50 | 39.65 | 39.80 | 39.94 | 40.09 | 0.955 |
| 0.956 | 38.36 | 38.51 | 38.66 | 38.81 | 38.96 | 39.11 | 39.25 | 39.40 | 39.55 | 39.69 | 39.84 | 39.99 | 40.13 | 0.956 |
| 0.957 | 38.40 | 38.55 | 38.70 | 38.85 | 39.00 | 39.15 | 39.30 | 39.44 | 39.59 | 39.74 | 39.88 | 40.03 | 40.17 | 0.957 |
| 0.958 | 38.44 | 38.59 | 38.74 | 38.89 | 39.04 | 39.19 | 39.34 | 39.49 | 39.64 | 39.78 | 39.93 | 40.07 | 40.22 | 0.958 |
| 0.959 | 38.48 | 38.63 | 38.79 | 38.94 | 39.09 | 39.24 | 39.38 | 39.53 | 39.68 | 39.83 | 39.97 | 40.12 | 40.26 | 0.959 |
| 0.960 | 38.52 | 38.68 | 38.83 | 38.98 | 39.13 | 39.28 | 39.43 | 39.57 | 39.72 | 39.87 | 40.02 | 40.16 | 40.31 | 0.960 |
| 0.961 | 38.57 | 38.72 | 38.87 | 39.02 | 39.17 | 39.32 | 39.47 | 39.62 | 39.77 | 39.91 | 40.06 | 40.21 | 40.35 | 0.961 |
| 0.962 | 38.61 | 38.76 | 38.91 | 39.06 | 39.21 | 39.36 | 39.51 | 39.66 | 39.81 | 39.96 | 40.10 | 40.25 | 40.39 | 0.962 |
| 0.963 | 38.65 | 38.80 | 38.96 | 39.11 | 39.26 | 39.41 | 39.56 | 39.71 | 39.85 | 40.00 | 40.15 | 40.29 | 40.44 | 0.963 |
| 0.964 | 38.69 | 38.85 | 39.00 | 39.15 | 39.30 | 39.45 | 39.60 | 39.75 | 39.90 | 40.04 | 40.19 | 40.34 | 40.48 | 0.964 |
| 0.965 | 38.74 | 38.89 | 39.04 | 39.19 | 39.34 | 39.49 | 39.64 | 39.79 | 39.94 | 40.09 | 40.24 | 40.38 | 40.53 | 0.965 |
| 0.966 | 38.78 | 38.93 | 39.08 | 39.24 | 39.39 | 39.54 | 39.69 | 39.84 | 39.98 | 40.13 | 40.28 | 40.43 | 40.57 | 0.966 |
| 0.967 | 38.82 | 38.97 | 39.13 | 39.28 | 39.43 | 39.58 | 39.73 | 39.88 | 40.03 | 40.18 | 40.32 | 40.47 | 40.62 | 0.967 |
| 0.968 | 38.86 | 39.02 | 39.17 | 39.32 | 39.47 | 39.62 | 39.77 | 39.92 | 40.07 | 40.22 | 40.37 | 40.51 | 40.66 | 0.968 |
| 0.969 | 38.90 | 39.06 | 39.21 | 39.36 | 39.51 | 39.67 | 39.82 | 39.97 | 40.11 | 40.26 | 40.41 | 40.56 | 40.70 | 0.969 |
| 0.970 | 38.95 | 39.10 | 39.25 | 39.41 | 39.56 | 39.71 | 39.86 | 40.01 | 40.16 | 40.31 | 40.45 | 40.60 | 40.75 | 0.970 |
| 0.971 | 38.99 | 39.14 | 39.30 | 39.45 | 39.60 | 39.75 | 39.90 | 40.05 | 40.20 | 40.35 | 40.50 | 40.65 | 40.79 | 0.971 |
| 0.972 | 39.03 | 39.19 | 39.34 | 39.49 | 39.64 | 39.80 | 39.95 | 40.10 | 40.25 | 40.39 | 40.54 | 40.69 | 40.84 | 0.972 |
| 0.973 | 39.07 | 39.23 | 39.38 | 39.53 | 39.69 | 39.84 | 39.99 | 40.14 | 40.29 | 40.44 | 40.59 | 40.73 | 40.88 | 0.973 |
| 0.974 | 39.12 | 39.27 | 39.42 | 39.58 | 39.73 | 39.88 | 40.03 | 40.18 | 40.33 | 40.48 | 40.63 | 40.78 | 40.93 | 0.974 |
| 0.975 | 39.16 | 39.31 | 39.47 | 39.62 | 39.77 | 39.92 | 40.08 | 40.23 | 40.38 | 40.53 | 40.67 | 40.82 | 40.97 | 0.975 |
| 0.976 | 39.20 | 39.36 | 39.51 | 39.66 | 39.82 | 39.97 | 40.12 | 40.27 | 40.42 | 40.57 | 40.72 | 40.87 | 41.01 | 0.976 |
| 0.977 | 39.24 | 39.40 | 39.55 | 39.71 | 39.86 | 40.01 | 40.16 | 40.31 | 40.46 | 40.61 | 40.76 | 40.91 | 41.06 | 0.977 |
| 0.978 | 39.29 | 39.44 | 39.59 | 39.75 | 39.90 | 40.05 | 40.21 | 40.36 | 40.51 | 40.66 | 40.81 | 40.95 | 41.10 | 0.978 |
| 0.979 | 39.33 | 39.48 | 39.64 | 39.79 | 39.94 | 40.10 | 40.25 | 40.40 | 40.55 | 40.70 | 40.85 | 41.00 | 41.15 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 18 | 22 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 58 | 62 | 66 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 38.35 | 38.49 | 38.63 | 38.77 | 38.91 | 39.05 | 39.19 | 39.33 | 39.47 | 39.61 | 39.74 | 39.88 | 40.02 | 0.930 |
| 0.931 | 38.39 | 38.53 | 38.67 | 38.81 | 38.96 | 39.10 | 39.24 | 39.37 | 39.51 | 39.65 | 39.79 | 39.93 | 40.06 | 0.931 |
| 0.932 | 38.43 | 38.58 | 38.72 | 38.86 | 39.00 | 39.14 | 39.28 | 39.42 | 39.56 | 39.70 | 39.83 | 39.97 | 40.11 | 0.932 |
| 0.933 | 38.48 | 38.62 | 38.76 | 38.90 | 39.04 | 39.18 | 39.32 | 39.46 | 39.60 | 39.74 | 39.88 | 40.02 | 40.15 | 0.933 |
| 0.934 | 38.52 | 38.66 | 38.80 | 38.95 | 39.09 | 39.23 | 39.37 | 39.51 | 39.65 | 39.79 | 39.92 | 40.06 | 40.20 | 0.934 |
| 0.935 | 38.56 | 38.71 | 38.85 | 38.99 | 39.13 | 39.27 | 39.41 | 39.55 | 39.69 | 39.83 | 39.97 | 40.11 | 40.24 | 0.935 |
| 0.936 | 38.61 | 38.75 | 38.89 | 39.03 | 39.18 | 39.32 | 39.46 | 39.60 | 39.74 | 39.87 | 40.01 | 40.15 | 40.29 | 0.936 |
| 0.937 | 38.65 | 38.79 | 38.94 | 39.08 | 39.22 | 39.36 | 39.50 | 39.64 | 39.78 | 39.92 | 40.06 | 40.20 | 40.33 | 0.937 |
| 0.938 | 38.69 | 38.84 | 38.98 | 39.12 | 39.26 | 39.41 | 39.55 | 39.69 | 39.83 | 39.96 | 40.10 | 40.24 | 40.38 | 0.938 |
| 0.939 | 38.74 | 38.88 | 39.02 | 39.17 | 39.31 | 39.45 | 39.59 | 39.73 | 39.87 | 40.01 | 40.15 | 40.29 | 40.42 | 0.939 |
| 0.940 | 38.78 | 38.92 | 39.07 | 39.21 | 39.35 | 39.49 | 39.63 | 39.78 | 39.92 | 40.05 | 40.19 | 40.33 | 40.47 | 0.940 |
| 0.941 | 38.82 | 38.97 | 39.11 | 39.25 | 39.40 | 39.54 | 39.68 | 39.82 | 39.96 | 40.10 | 40.24 | 40.38 | 40.51 | 0.941 |
| 0.942 | 38.87 | 39.01 | 39.15 | 39.30 | 39.44 | 39.58 | 39.72 | 39.86 | 40.00 | 40.14 | 40.28 | 40.42 | 40.56 | 0.942 |
| 0.943 | 38.91 | 39.05 | 39.20 | 39.34 | 39.48 | 39.63 | 39.77 | 39.91 | 40.05 | 40.19 | 40.33 | 40.47 | 40.61 | 0.943 |
| 0.944 | 38.95 | 39.10 | 39.24 | 39.39 | 39.53 | 39.67 | 39.81 | 39.95 | 40.09 | 40.23 | 40.37 | 40.51 | 40.65 | 0.944 |
| 0.945 | 39.00 | 39.14 | 39.29 | 39.43 | 39.57 | 39.71 | 39.86 | 40.00 | 40.14 | 40.28 | 40.42 | 40.56 | 40.70 | 0.945 |
| 0.946 | 39.04 | 39.19 | 39.33 | 39.47 | 39.62 | 39.76 | 39.90 | 40.04 | 40.18 | 40.32 | 40.46 | 40.60 | 40.74 | 0.946 |
| 0.947 | 39.08 | 39.23 | 39.37 | 39.52 | 39.66 | 39.80 | 39.95 | 40.09 | 40.23 | 40.37 | 40.51 | 40.65 | 40.79 | 0.947 |
| 0.948 | 39.13 | 39.27 | 39.42 | 39.56 | 39.70 | 39.85 | 39.99 | 40.13 | 40.27 | 40.41 | 40.55 | 40.69 | 40.83 | 0.948 |
| 0.949 | 39.17 | 39.32 | 39.46 | 39.61 | 39.75 | 39.89 | 40.03 | 40.18 | 40.32 | 40.46 | 40.60 | 40.74 | 40.88 | 0.949 |
| 0.950 | 39.21 | 39.36 | 39.50 | 39.65 | 39.79 | 39.94 | 40.08 | 40.22 | 40.36 | 40.50 | 40.64 | 40.78 | 40.92 | 0.950 |
| 0.951 | 39.26 | 39.40 | 39.55 | 39.69 | 39.84 | 39.98 | 40.12 | 40.27 | 40.41 | 40.55 | 40.69 | 40.83 | 40.97 | 0.951 |
| 0.952 | 39.30 | 39.45 | 39.59 | 39.74 | 39.88 | 40.02 | 40.17 | 40.31 | 40.45 | 40.59 | 40.73 | 40.87 | 41.01 | 0.952 |
| 0.953 | 39.34 | 39.49 | 39.64 | 39.78 | 39.93 | 40.07 | 40.21 | 40.35 | 40.50 | 40.64 | 40.78 | 40.92 | 41.06 | 0.953 |
| 0.954 | 39.39 | 39.53 | 39.68 | 39.82 | 39.97 | 40.11 | 40.26 | 40.40 | 40.54 | 40.68 | 40.82 | 40.96 | 41.10 | 0.954 |
| 0.955 | 39.43 | 39.58 | 39.72 | 39.87 | 40.01 | 40.16 | 40.30 | 40.44 | 40.59 | 40.73 | 40.87 | 41.01 | 41.15 | 0.955 |
| 0.956 | 39.47 | 39.62 | 39.77 | 39.91 | 40.06 | 40.20 | 40.35 | 40.49 | 40.63 | 40.77 | 40.91 | 41.05 | 41.19 | 0.956 |
| 0.957 | 39.52 | 39.67 | 39.81 | 39.96 | 40.10 | 40.25 | 40.39 | 40.53 | 40.68 | 40.82 | 40.96 | 41.10 | 41.24 | 0.957 |
| 0.958 | 39.56 | 39.71 | 39.85 | 40.00 | 40.15 | 40.29 | 40.43 | 40.58 | 40.72 | 40.86 | 41.00 | 41.14 | 41.29 | 0.958 |
| 0.959 | 39.61 | 39.75 | 39.90 | 40.04 | 40.19 | 40.33 | 40.48 | 40.62 | 40.76 | 40.91 | 41.05 | 41.19 | 41.33 | 0.959 |
| 0.960 | 39.65 | 39.80 | 39.94 | 40.09 | 40.23 | 40.38 | 40.52 | 40.67 | 40.81 | 40.95 | 41.09 | 41.24 | 41.38 | 0.960 |
| 0.961 | 39.69 | 39.84 | 39.99 | 40.13 | 40.28 | 40.42 | 40.57 | 40.71 | 40.85 | 41.00 | 41.14 | 41.28 | 41.42 | 0.961 |
| 0.962 | 39.74 | 39.88 | 40.03 | 40.18 | 40.32 | 40.47 | 40.61 | 40.76 | 40.90 | 41.04 | 41.18 | 41.33 | 41.47 | 0.962 |
| 0.963 | 39.78 | 39.93 | 40.07 | 40.22 | 40.37 | 40.51 | 40.66 | 40.80 | 40.94 | 41.09 | 41.23 | 41.37 | 41.51 | 0.963 |
| 0.964 | 39.82 | 39.97 | 40.12 | 40.26 | 40.41 | 40.56 | 40.70 | 40.84 | 40.99 | 41.13 | 41.27 | 41.42 | 41.56 | 0.964 |
| 0.965 | 39.87 | 40.01 | 40.16 | 40.31 | 40.45 | 40.60 | 40.75 | 40.89 | 41.03 | 41.18 | 41.32 | 41.46 | 41.60 | 0.965 |
| 0.966 | 39.91 | 40.06 | 40.21 | 40.35 | 40.50 | 40.64 | 40.79 | 40.93 | 41.08 | 41.22 | 41.36 | 41.51 | 41.65 | 0.966 |
| 0.967 | 39.95 | 40.10 | 40.25 | 40.40 | 40.54 | 40.69 | 40.83 | 40.98 | 41.12 | 41.27 | 41.41 | 41.55 | 41.69 | 0.967 |
| 0.968 | 40.00 | 40.15 | 40.29 | 40.44 | 40.59 | 40.73 | 40.88 | 41.02 | 41.17 | 41.31 | 41.45 | 41.60 | 41.74 | 0.968 |
| 0.969 | 40.04 | 40.19 | 40.34 | 40.48 | 40.63 | 40.78 | 40.92 | 41.07 | 41.21 | 41.36 | 41.50 | 41.64 | 41.78 | 0.969 |
| 0.970 | 40.08 | 40.23 | 40.38 | 40.53 | 40.68 | 40.82 | 40.97 | 41.11 | 41.26 | 41.40 | 41.54 | 41.69 | 41.83 | 0.970 |
| 0.971 | 40.13 | 40.28 | 40.42 | 40.57 | 40.72 | 40.87 | 41.01 | 41.16 | 41.30 | 41.45 | 41.59 | 41.73 | 41.88 | 0.971 |
| 0.972 | 40.17 | 40.32 | 40.47 | 40.62 | 40.76 | 40.91 | 41.06 | 41.20 | 41.35 | 41.49 | 41.63 | 41.78 | 41.92 | 0.972 |
| 0.973 | 40.21 | 40.36 | 40.51 | 40.66 | 40.81 | 40.95 | 41.10 | 41.25 | 41.39 | 41.54 | 41.68 | 41.82 | 41.97 | 0.973 |
| 0.974 | 40.26 | 40.41 | 40.56 | 40.70 | 40.85 | 41.00 | 41.15 | 41.29 | 41.44 | 41.58 | 41.73 | 41.87 | 42.01 | 0.974 |
| 0.975 | 40.30 | 40.45 | 40.60 | 40.75 | 40.90 | 41.04 | 41.19 | 41.34 | 41.48 | 41.63 | 41.77 | 41.91 | 42.06 | 0.975 |
| 0.976 | 40.34 | 40.49 | 40.64 | 40.79 | 40.94 | 41.09 | 41.23 | 41.38 | 41.53 | 41.67 | 41.82 | 41.96 | 42.10 | 0.976 |
| 0.977 | 40.39 | 40.54 | 40.69 | 40.84 | 40.98 | 41.13 | 41.28 | 41.42 | 41.57 | 41.72 | 41.86 | 42.00 | 42.15 | 0.977 |
| 0.978 | 40.43 | 40.58 | 40.73 | 40.88 | 41.03 | 41.18 | 41.32 | 41.47 | 41.62 | 41.76 | 41.91 | 42.05 | 42.19 | 0.978 |
| 0.979 | 40.48 | 40.63 | 40.78 | 40.92 | 41.07 | 41.22 | 41.37 | 41.51 | 41.66 | 41.81 | 41.95 | 42.09 | 42.24 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 48 | 52 | 56 | 60 | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 39.40 | 39.54 | 39.67 | 39.81 | 39.95 | 40.08 | 40.22 | 40.35 | 40.49 | 40.62 | 40.76 | 40.89 | 41.02 | 0.930 |
| 0.931 | 39.44 | 39.58 | 39.72 | 39.86 | 39.99 | 40.13 | 40.27 | 40.40 | 40.53 | 40.67 | 40.80 | 40.94 | 41.07 | 0.931 |
| 0.932 | 39.49 | 39.63 | 39.76 | 39.90 | 40.04 | 40.17 | 40.31 | 40.45 | 40.58 | 40.71 | 40.85 | 40.98 | 41.11 | 0.932 |
| 0.933 | 39.53 | 39.67 | 39.81 | 39.95 | 40.08 | 40.22 | 40.36 | 40.49 | 40.63 | 40.76 | 40.89 | 41.03 | 41.16 | 0.933 |
| 0.934 | 39.58 | 39.72 | 39.85 | 39.99 | 40.13 | 40.27 | 40.40 | 40.54 | 40.67 | 40.81 | 40.94 | 41.07 | 41.21 | 0.934 |
| 0.935 | 39.62 | 39.76 | 39.90 | 40.04 | 40.17 | 40.31 | 40.45 | 40.58 | 40.72 | 40.85 | 40.99 | 41.12 | 41.25 | 0.935 |
| 0.936 | 39.67 | 39.81 | 39.94 | 40.08 | 40.22 | 40.36 | 40.49 | 40.63 | 40.76 | 40.90 | 41.03 | 41.17 | 41.30 | 0.936 |
| 0.937 | 39.71 | 39.85 | 39.99 | 40.13 | 40.26 | 40.40 | 40.54 | 40.67 | 40.81 | 40.94 | 41.08 | 41.21 | 41.35 | 0.937 |
| 0.938 | 39.76 | 39.90 | 40.03 | 40.17 | 40.31 | 40.45 | 40.58 | 40.72 | 40.86 | 40.99 | 41.13 | 41.26 | 41.39 | 0.938 |
| 0.939 | 39.80 | 39.94 | 40.08 | 40.22 | 40.36 | 40.49 | 40.63 | 40.77 | 40.90 | 41.04 | 41.17 | 41.31 | 41.44 | 0.939 |
| 0.940 | 39.85 | 39.98 | 40.12 | 40.26 | 40.40 | 40.54 | 40.67 | 40.81 | 40.95 | 41.08 | 41.22 | 41.35 | 41.49 | 0.940 |
| 0.941 | 39.89 | 40.03 | 40.17 | 40.31 | 40.45 | 40.58 | 40.72 | 40.86 | 40.99 | 41.13 | 41.26 | 41.40 | 41.53 | 0.941 |
| 0.942 | 39.93 | 40.07 | 40.21 | 40.35 | 40.49 | 40.63 | 40.77 | 40.90 | 41.04 | 41.17 | 41.31 | 41.44 | 41.58 | 0.942 |
| 0.943 | 39.98 | 40.12 | 40.26 | 40.40 | 40.54 | 40.67 | 40.81 | 40.95 | 41.08 | 41.22 | 41.36 | 41.49 | 41.63 | 0.943 |
| 0.944 | 40.02 | 40.16 | 40.30 | 40.44 | 40.58 | 40.72 | 40.86 | 40.99 | 41.13 | 41.27 | 41.40 | 41.54 | 41.67 | 0.944 |
| 0.945 | 40.07 | 40.21 | 40.35 | 40.49 | 40.63 | 40.76 | 40.90 | 41.04 | 41.18 | 41.31 | 41.45 | 41.58 | 41.72 | 0.945 |
| 0.946 | 40.11 | 40.25 | 40.39 | 40.53 | 40.67 | 40.81 | 40.95 | 41.09 | 41.22 | 41.36 | 41.49 | 41.63 | 41.77 | 0.946 |
| 0.947 | 40.16 | 40.30 | 40.44 | 40.58 | 40.72 | 40.86 | 40.99 | 41.13 | 41.27 | 41.40 | 41.54 | 41.68 | 41.81 | 0.947 |
| 0.948 | 40.20 | 40.34 | 40.48 | 40.62 | 40.76 | 40.90 | 41.04 | 41.18 | 41.31 | 41.45 | 41.59 | 41.72 | 41.86 | 0.948 |
| 0.949 | 40.25 | 40.39 | 40.53 | 40.67 | 40.81 | 40.95 | 41.09 | 41.22 | 41.36 | 41.50 | 41.63 | 41.77 | 41.90 | 0.949 |
| 0.950 | 40.29 | 40.43 | 40.57 | 40.71 | 40.85 | 40.99 | 41.13 | 41.27 | 41.41 | 41.54 | 41.68 | 41.82 | 41.95 | 0.950 |
| 0.951 | 40.34 | 40.48 | 40.62 | 40.76 | 40.90 | 41.04 | 41.18 | 41.31 | 41.45 | 41.59 | 41.73 | 41.86 | 42.00 | 0.951 |
| 0.952 | 40.38 | 40.52 | 40.66 | 40.80 | 40.94 | 41.08 | 41.22 | 41.36 | 41.50 | 41.64 | 41.77 | 41.91 | 42.04 | 0.952 |
| 0.953 | 40.43 | 40.57 | 40.71 | 40.85 | 40.99 | 41.13 | 41.27 | 41.41 | 41.54 | 41.68 | 41.82 | 41.95 | 42.09 | 0.953 |
| 0.954 | 40.47 | 40.61 | 40.75 | 40.89 | 41.03 | 41.17 | 41.31 | 41.45 | 41.59 | 41.73 | 41.86 | 42.00 | 42.14 | 0.954 |
| 0.955 | 40.51 | 40.66 | 40.80 | 40.94 | 41.08 | 41.22 | 41.36 | 41.50 | 41.64 | 41.77 | 41.91 | 42.05 | 42.18 | 0.955 |
| 0.956 | 40.56 | 40.70 | 40.84 | 40.98 | 41.12 | 41.26 | 41.40 | 41.54 | 41.68 | 41.82 | 41.96 | 42.09 | 42.23 | 0.956 |
| 0.957 | 40.60 | 40.75 | 40.89 | 41.03 | 41.17 | 41.31 | 41.45 | 41.59 | 41.73 | 41.87 | 42.00 | 42.14 | 42.28 | 0.957 |
| 0.958 | 40.65 | 40.79 | 40.93 | 41.07 | 41.22 | 41.36 | 41.50 | 41.63 | 41.77 | 41.91 | 42.05 | 42.19 | 42.32 | 0.958 |
| 0.959 | 40.69 | 40.84 | 40.98 | 41.12 | 41.26 | 41.40 | 41.54 | 41.68 | 41.82 | 41.96 | 42.10 | 42.23 | 42.37 | 0.959 |
| 0.960 | 40.74 | 40.88 | 41.02 | 41.16 | 41.31 | 41.45 | 41.59 | 41.73 | 41.87 | 42.00 | 42.14 | 42.28 | 42.42 | 0.960 |
| 0.961 | 40.78 | 40.93 | 41.07 | 41.21 | 41.35 | 41.49 | 41.63 | 41.77 | 41.91 | 42.05 | 42.19 | 42.33 | 42.46 | 0.961 |
| 0.962 | 40.83 | 40.97 | 41.11 | 41.26 | 41.40 | 41.54 | 41.68 | 41.82 | 41.96 | 42.10 | 42.23 | 42.37 | 42.51 | 0.962 |
| 0.963 | 40.87 | 41.02 | 41.16 | 41.30 | 41.44 | 41.58 | 41.72 | 41.86 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 0.963 |
| 0.964 | 40.92 | 41.06 | 41.20 | 41.35 | 41.49 | 41.63 | 41.77 | 41.91 | 42.05 | 42.19 | 42.33 | 42.46 | 42.60 | 0.964 |
| 0.965 | 40.96 | 41.11 | 41.25 | 41.39 | 41.53 | 41.67 | 41.81 | 41.95 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 0.965 |
| 0.966 | 41.01 | 41.15 | 41.29 | 41.44 | 41.58 | 41.72 | 41.86 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 0.966 |
| 0.967 | 41.05 | 41.19 | 41.34 | 41.48 | 41.62 | 41.76 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 42.60 | 42.74 | 0.967 |
| 0.968 | 41.10 | 41.24 | 41.38 | 41.53 | 41.67 | 41.81 | 41.95 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 0.968 |
| 0.969 | 41.14 | 41.28 | 41.43 | 41.57 | 41.71 | 41.86 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 42.83 | 0.969 |
| 0.970 | 41.18 | 41.33 | 41.47 | 41.62 | 41.76 | 41.90 | 42.04 | 42.18 | 42.32 | 42.46 | 42.60 | 42.74 | 42.88 | 0.970 |
| 0.971 | 41.23 | 41.37 | 41.52 | 41.66 | 41.80 | 41.95 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 0.971 |
| 0.972 | 41.27 | 41.42 | 41.56 | 41.71 | 41.85 | 41.99 | 42.13 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 42.97 | 0.972 |
| 0.973 | 41.32 | 41.46 | 41.61 | 41.75 | 41.89 | 42.04 | 42.18 | 42.32 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 0.973 |
| 0.974 | 41.36 | 41.51 | 41.65 | 41.80 | 41.94 | 42.08 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 43.07 | 0.974 |
| 0.975 | 41.41 | 41.55 | 41.70 | 41.84 | 41.99 | 42.13 | 42.27 | 42.41 | 42.55 | 42.69 | 42.83 | 42.97 | 43.11 | 0.975 |
| 0.976 | 41.45 | 41.60 | 41.74 | 41.89 | 42.03 | 42.17 | 42.32 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 0.976 |
| 0.977 | 41.50 | 41.64 | 41.79 | 41.93 | 42.08 | 42.22 | 42.36 | 42.50 | 42.65 | 42.79 | 42.93 | 43.07 | 43.21 | 0.977 |
| 0.978 | 41.54 | 41.69 | 41.83 | 41.98 | 42.12 | 42.26 | 42.41 | 42.55 | 42.69 | 42.83 | 42.97 | 43.11 | 43.25 | 0.978 |
| 0.979 | 41.59 | 41.73 | 41.88 | 42.02 | 42.17 | 42.31 | 42.45 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 43.30 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 40.35 | 40.49 | 40.62 | 40.76 | 40.89 | 41.02 | 41.15 | 41.29 | 41.42 | 41.55 | 41.68 | 41.81 | 41.94 | 0.930 |
| 0.931 | 40.40 | 40.53 | 40.67 | 40.80 | 40.94 | 41.07 | 41.20 | 41.33 | 41.46 | 41.59 | 41.72 | 41.85 | 41.98 | 0.931 |
| 0.932 | 40.45 | 40.58 | 40.71 | 40.85 | 40.98 | 41.11 | 41.25 | 41.38 | 41.51 | 41.64 | 41.77 | 41.90 | 42.03 | 0.932 |
| 0.933 | 40.49 | 40.63 | 40.76 | 40.89 | 41.03 | 41.16 | 41.29 | 41.43 | 41.56 | 41.69 | 41.82 | 41.95 | 42.08 | 0.933 |
| 0.934 | 40.54 | 40.67 | 40.81 | 40.94 | 41.07 | 41.21 | 41.34 | 41.47 | 41.60 | 41.74 | 41.87 | 42.00 | 42.13 | 0.934 |
| 0.935 | 40.58 | 40.72 | 40.85 | 40.99 | 41.12 | 41.25 | 41.39 | 41.52 | 41.65 | 41.78 | 41.91 | 42.04 | 42.17 | 0.935 |
| 0.936 | 40.63 | 40.76 | 40.90 | 41.03 | 41.17 | 41.30 | 41.43 | 41.57 | 41.70 | 41.83 | 41.96 | 42.09 | 42.22 | 0.936 |
| 0.937 | 40.67 | 40.81 | 40.94 | 41.08 | 41.21 | 41.35 | 41.48 | 41.61 | 41.74 | 41.88 | 42.01 | 42.14 | 42.27 | 0.937 |
| 0.938 | 40.72 | 40.86 | 40.99 | 41.13 | 41.26 | 41.39 | 41.53 | 41.66 | 41.79 | 41.92 | 42.05 | 42.19 | 42.32 | 0.938 |
| 0.939 | 40.77 | 40.90 | 41.04 | 41.17 | 41.31 | 41.44 | 41.57 | 41.71 | 41.84 | 41.97 | 42.10 | 42.23 | 42.36 | 0.939 |
| 0.940 | 40.81 | 40.95 | 41.08 | 41.22 | 41.35 | 41.49 | 41.62 | 41.75 | 41.89 | 42.02 | 42.15 | 42.28 | 42.41 | 0.940 |
| 0.941 | 40.86 | 40.99 | 41.13 | 41.26 | 41.40 | 41.53 | 41.67 | 41.80 | 41.93 | 42.06 | 42.20 | 42.33 | 42.46 | 0.941 |
| 0.942 | 40.90 | 41.04 | 41.17 | 41.31 | 41.44 | 41.58 | 41.71 | 41.85 | 41.98 | 42.11 | 42.24 | 42.38 | 42.51 | 0.942 |
| 0.943 | 40.95 | 41.08 | 41.22 | 41.36 | 41.49 | 41.63 | 41.76 | 41.89 | 42.03 | 42.16 | 42.29 | 42.42 | 42.55 | 0.943 |
| 0.944 | 40.99 | 41.13 | 41.27 | 41.40 | 41.54 | 41.67 | 41.81 | 41.94 | 42.07 | 42.21 | 42.34 | 42.47 | 42.60 | 0.944 |
| 0.945 | 41.04 | 41.18 | 41.31 | 41.45 | 41.58 | 41.72 | 41.85 | 41.99 | 42.12 | 42.25 | 42.39 | 42.52 | 42.65 | 0.945 |
| 0.946 | 41.09 | 41.22 | 41.36 | 41.49 | 41.63 | 41.77 | 41.90 | 42.03 | 42.17 | 42.30 | 42.43 | 42.56 | 42.70 | 0.946 |
| 0.947 | 41.13 | 41.27 | 41.40 | 41.54 | 41.68 | 41.81 | 41.95 | 42.08 | 42.21 | 42.35 | 42.48 | 42.61 | 42.74 | 0.947 |
| 0.948 | 41.18 | 41.31 | 41.45 | 41.59 | 41.72 | 41.86 | 41.99 | 42.13 | 42.26 | 42.39 | 42.53 | 42.66 | 42.79 | 0.948 |
| 0.949 | 41.22 | 41.36 | 41.50 | 41.63 | 41.77 | 41.90 | 42.04 | 42.17 | 42.31 | 42.44 | 42.57 | 42.71 | 42.84 | 0.949 |
| 0.950 | 41.27 | 41.41 | 41.54 | 41.68 | 41.82 | 41.95 | 42.09 | 42.22 | 42.35 | 42.49 | 42.62 | 42.75 | 42.89 | 0.950 |
| 0.951 | 41.31 | 41.45 | 41.59 | 41.73 | 41.86 | 42.00 | 42.13 | 42.27 | 42.40 | 42.54 | 42.67 | 42.80 | 42.93 | 0.951 |
| 0.952 | 41.36 | 41.50 | 41.64 | 41.77 | 41.91 | 42.04 | 42.18 | 42.31 | 42.45 | 42.58 | 42.72 | 42.85 | 42.98 | 0.952 |
| 0.953 | 41.41 | 41.54 | 41.68 | 41.82 | 41.95 | 42.09 | 42.23 | 42.36 | 42.50 | 42.63 | 42.76 | 42.90 | 43.03 | 0.953 |
| 0.954 | 41.45 | 41.59 | 41.73 | 41.86 | 42.00 | 42.14 | 42.27 | 42.41 | 42.54 | 42.68 | 42.81 | 42.94 | 43.08 | 0.954 |
| 0.955 | 41.50 | 41.64 | 41.77 | 41.91 | 42.05 | 42.18 | 42.32 | 42.45 | 42.59 | 42.72 | 42.86 | 42.99 | 43.12 | 0.955 |
| 0.956 | 41.54 | 41.68 | 41.82 | 41.96 | 42.09 | 42.23 | 42.37 | 42.50 | 42.64 | 42.77 | 42.90 | 43.04 | 43.17 | 0.956 |
| 0.957 | 41.59 | 41.73 | 41.87 | 42.00 | 42.14 | 42.28 | 42.41 | 42.55 | 42.68 | 42.82 | 42.95 | 43.09 | 43.22 | 0.957 |
| 0.958 | 41.63 | 41.77 | 41.91 | 42.05 | 42.19 | 42.32 | 42.46 | 42.59 | 42.73 | 42.86 | 43.00 | 43.13 | 43.27 | 0.958 |
| 0.959 | 41.68 | 41.82 | 41.96 | 42.10 | 42.23 | 42.37 | 42.51 | 42.64 | 42.78 | 42.91 | 43.05 | 43.18 | 43.31 | 0.959 |
| 0.960 | 41.73 | 41.87 | 42.00 | 42.14 | 42.28 | 42.42 | 42.55 | 42.69 | 42.82 | 42.96 | 43.09 | 43.23 | 43.36 | 0.960 |
| 0.961 | 41.77 | 41.91 | 42.05 | 42.19 | 42.33 | 42.46 | 42.60 | 42.74 | 42.87 | 43.01 | 43.14 | 43.28 | 43.41 | 0.961 |
| 0.962 | 41.82 | 41.96 | 42.10 | 42.23 | 42.37 | 42.51 | 42.65 | 42.78 | 42.92 | 43.05 | 43.19 | 43.32 | 43.46 | 0.962 |
| 0.963 | 41.86 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.69 | 42.83 | 42.96 | 43.10 | 43.24 | 43.37 | 43.50 | 0.963 |
| 0.964 | 41.91 | 42.05 | 42.19 | 42.33 | 42.46 | 42.60 | 42.74 | 42.88 | 43.01 | 43.15 | 43.28 | 43.42 | 43.55 | 0.964 |
| 0.965 | 41.95 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.92 | 43.06 | 43.19 | 43.33 | 43.46 | 43.60 | 0.965 |
| 0.966 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 42.83 | 42.97 | 43.11 | 43.24 | 43.38 | 43.51 | 43.65 | 0.966 |
| 0.967 | 42.05 | 42.19 | 42.33 | 42.47 | 42.60 | 42.74 | 42.88 | 43.02 | 43.15 | 43.29 | 43.42 | 43.56 | 43.69 | 0.967 |
| 0.968 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 43.06 | 43.20 | 43.34 | 43.47 | 43.61 | 43.74 | 0.968 |
| 0.969 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 42.83 | 42.97 | 43.11 | 43.25 | 43.38 | 43.52 | 43.65 | 43.79 | 0.969 |
| 0.970 | 42.18 | 42.32 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 43.29 | 43.43 | 43.57 | 43.70 | 43.84 | 0.970 |
| 0.971 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 43.07 | 43.20 | 43.34 | 43.48 | 43.61 | 43.75 | 43.88 | 0.971 |
| 0.972 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 42.97 | 43.11 | 43.25 | 43.39 | 43.52 | 43.66 | 43.80 | 43.93 | 0.972 |
| 0.973 | 42.32 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 43.30 | 43.43 | 43.57 | 43.71 | 43.84 | 43.98 | 0.973 |
| 0.974 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 43.07 | 43.21 | 43.34 | 43.48 | 43.62 | 43.76 | 43.89 | 44.03 | 0.974 |
| 0.975 | 42.41 | 42.55 | 42.69 | 42.83 | 42.97 | 43.11 | 43.25 | 43.39 | 43.53 | 43.67 | 43.80 | 43.94 | 44.08 | 0.975 |
| 0.976 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 43.30 | 43.44 | 43.58 | 43.71 | 43.85 | 43.99 | 44.12 | 0.976 |
| 0.977 | 42.50 | 42.65 | 42.79 | 42.93 | 43.07 | 43.21 | 43.35 | 43.48 | 43.62 | 43.76 | 43.90 | 44.03 | 44.17 | 0.977 |
| 0.978 | 42.55 | 42.69 | 42.83 | 42.97 | 43.11 | 43.25 | 43.39 | 43.53 | 43.67 | 43.81 | 43.94 | 44.08 | 44.22 | 0.978 |
| 0.979 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 43.30 | 43.44 | 43.58 | 43.72 | 43.85 | 43.99 | 44.13 | 44.27 | 0.979 |

09-0007

Thermo Scientific

Flow Look-Up Table for PM10 VFC

High Volume Air Sampler

Serial # P9307 X

Calibrated with Rootsmeter serial # 0438320

Date Calibrated: 05/08/15

USE OF LOOK-UP-TABLE FOR DETERMINATION OF FLOW RATE PM10 VFC High Volume Air Sampler

1. Determine and record atmospheric properties.
2. Operate sampler and allow to warm up. Perform leak test and make sure all gaskets are in place and that there are no leaks.
3. Read the differential pressure across the filter (P_f), inches of H_2O that has to be converted to mm Hg. Reading is taken with a manometer where one side is open to atmosphere and the other is connected to pressure tap on side of filter holder. Filter should be in place for this measurement.
4. Calculate pressure ratio, P_o / P_a $P_o / P_a = 1 - (P_f / P_a)$
 P_f and P_a should be in mm Hg
5. Look up flow rate in look up table. The first 4 pages are in Celsius and actual m^3/min the last 4 pages are in Fahrenheit and actual cubic feet.

Example

(NOTE: Individual Look Up Tables will vary.)

1. Suppose the ambient conditions are:

Temperature: $T_a = 24^\circ C$

Barometric Pressure: $P_a = 762$ mm Hg (this must be station pressure which is not corrected to sea level)

2. Assume system is allowed to warm up for stable operation.
3. Measure filter pressure differential, P_f . This reading is the set-up reading plus pick-up reading divided by 2 for an average reading. This is taken with a differential manometer with one side of the manometer connected to the stagnation tap on the filter holder (or the Bulkhead Fitting) and the other side open to the atmosphere. Filter must be in place during this measurement.

Assume that:

Set-up Reading: $P_f = 18.60$ in H_2O

Pick-up Reading: $P_f = 19.80$ in H_2O

$P_f = (18.60 + 19.80)/2 = 19.20$ in H_2O .

4. Convert $P_f =$ to same units as barometric pressure.

$$P_f = 19.20 \text{ in H}_2\text{O} / 13.61 \times 25.4 = 35.83 \text{ mm Hg}$$

$$P_f = 35.83 \text{ mm Hg}$$

5. Calculate pressure ratio.

$$P_o/P_a = 1 - (P_f/P_a)$$

NOTE: P_f and P_a MUST HAVE CONSISTENT UNITS

$$P_o/P_a = 1 - (35.83 / 762) \quad P_o/P_a = .953$$

6. Look up Flow Rate from table.

Table 1 (pages 1 – 4) is set up with temperature in °C and the Flow Rate is read in units of m^3/min (actual, ACMM). In table 2 (pages 5 – 8) the temperature is in °F and Flow Rate is read in ft^3/min (actual, ACFM).

a) For the example we will use Table 1.

Locate the temperature and pressure ratio entries nearest the conditions of:

$$T_a = 24^\circ\text{C}$$

$$P_o/P_a = .953$$

Example: Look-Up Table for Actual Flow Rate in Units of m^3/min

| | Temperature °C | | | | |
|--------------|----------------|--------------|-----------|-----------|-----------|
| <u>Po/Pa</u> | <u>22</u> | <u>24</u> | <u>26</u> | <u>28</u> | <u>30</u> |
| 0.950 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 |
| 0.951 | 1.144 | 1.147 | 1.150 | 1.154 | 1.157 |
| 0.952 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 |
| 0.953 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 |
| 0.954 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 |
| 0.955 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 |

b) The reading of flow rate is: $Q_a = 1.150 \text{ m}^3/\text{min}$ (actual)

If your P_o/P_a number is not in look up table ie; $>.979$ then interpolate.

7. Determine flow rate in terms of standard air.

$$Q_{\text{std}} = 1.150 \text{ m}^3 / \text{min} \left(\frac{762 \text{ mm Hg}}{760 \text{ mm Hg}} \right) \left(\frac{298\text{K}}{(273 + 24) \text{K}} \right)$$

$$Q_{\text{std}} = 1.157 \text{ std m}^3/\text{min}$$

It is always a good idea to contact the lab that you are dealing with to determine what information that they need including actual or standard air with respect to flow rate.

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | -32 | -30 | -28 | -26 | -24 | -22 | -20 | -18 | -16 | -14 | -12 | -10 | -8 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.034 | 1.038 | 1.042 | 1.045 | 1.049 | 1.053 | 1.057 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.078 | 0.930 |
| 0.931 | 1.035 | 1.039 | 1.043 | 1.047 | 1.050 | 1.054 | 1.058 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 0.931 |
| 0.932 | 1.036 | 1.040 | 1.044 | 1.048 | 1.052 | 1.055 | 1.059 | 1.063 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 0.932 |
| 0.933 | 1.038 | 1.041 | 1.045 | 1.049 | 1.053 | 1.056 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.078 | 1.082 | 0.933 |
| 0.934 | 1.039 | 1.043 | 1.046 | 1.050 | 1.054 | 1.058 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.083 | 0.934 |
| 0.935 | 1.040 | 1.044 | 1.048 | 1.051 | 1.055 | 1.059 | 1.063 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 1.085 | 0.935 |
| 0.936 | 1.041 | 1.045 | 1.049 | 1.052 | 1.056 | 1.060 | 1.064 | 1.067 | 1.071 | 1.075 | 1.078 | 1.082 | 1.086 | 0.936 |
| 0.937 | 1.042 | 1.046 | 1.050 | 1.054 | 1.057 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 0.937 |
| 0.938 | 1.043 | 1.047 | 1.051 | 1.055 | 1.059 | 1.062 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 1.085 | 1.088 | 0.938 |
| 0.939 | 1.045 | 1.048 | 1.052 | 1.056 | 1.060 | 1.064 | 1.067 | 1.071 | 1.075 | 1.078 | 1.082 | 1.086 | 1.089 | 0.939 |
| 0.940 | 1.046 | 1.050 | 1.053 | 1.057 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 1.091 | 0.940 |
| 0.941 | 1.047 | 1.051 | 1.055 | 1.058 | 1.062 | 1.066 | 1.070 | 1.073 | 1.077 | 1.081 | 1.085 | 1.088 | 1.092 | 0.941 |
| 0.942 | 1.048 | 1.052 | 1.056 | 1.060 | 1.063 | 1.067 | 1.071 | 1.075 | 1.078 | 1.082 | 1.086 | 1.089 | 1.093 | 0.942 |
| 0.943 | 1.049 | 1.053 | 1.057 | 1.061 | 1.065 | 1.068 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 1.091 | 1.094 | 0.943 |
| 0.944 | 1.051 | 1.054 | 1.058 | 1.062 | 1.066 | 1.070 | 1.073 | 1.077 | 1.081 | 1.084 | 1.088 | 1.092 | 1.096 | 0.944 |
| 0.945 | 1.052 | 1.056 | 1.059 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.086 | 1.089 | 1.093 | 1.097 | 0.945 |
| 0.946 | 1.053 | 1.057 | 1.061 | 1.064 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 0.946 |
| 0.947 | 1.054 | 1.058 | 1.062 | 1.066 | 1.069 | 1.073 | 1.077 | 1.081 | 1.084 | 1.088 | 1.092 | 1.096 | 1.099 | 0.947 |
| 0.948 | 1.055 | 1.059 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.086 | 1.089 | 1.093 | 1.097 | 1.100 | 0.948 |
| 0.949 | 1.056 | 1.060 | 1.064 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 1.102 | 0.949 |
| 0.950 | 1.058 | 1.061 | 1.065 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 1.088 | 1.092 | 1.095 | 1.099 | 1.103 | 0.950 |
| 0.951 | 1.059 | 1.063 | 1.066 | 1.070 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 0.951 |
| 0.952 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 1.102 | 1.105 | 0.952 |
| 0.953 | 1.061 | 1.065 | 1.069 | 1.073 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.095 | 1.099 | 1.103 | 1.107 | 0.953 |
| 0.954 | 1.062 | 1.066 | 1.070 | 1.074 | 1.078 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 1.108 | 0.954 |
| 0.955 | 1.063 | 1.067 | 1.071 | 1.075 | 1.079 | 1.083 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.105 | 1.109 | 0.955 |
| 0.956 | 1.065 | 1.068 | 1.072 | 1.076 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.110 | 0.956 |
| 0.957 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 1.085 | 1.089 | 1.093 | 1.096 | 1.100 | 1.104 | 1.108 | 1.111 | 0.957 |
| 0.958 | 1.067 | 1.071 | 1.075 | 1.079 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 1.109 | 1.113 | 0.958 |
| 0.959 | 1.068 | 1.072 | 1.076 | 1.080 | 1.084 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.106 | 1.110 | 1.114 | 0.959 |
| 0.960 | 1.069 | 1.073 | 1.077 | 1.081 | 1.085 | 1.089 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 0.960 |
| 0.961 | 1.070 | 1.074 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.116 | 0.961 |
| 0.962 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 0.962 |
| 0.963 | 1.073 | 1.077 | 1.081 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 1.119 | 0.963 |
| 0.964 | 1.074 | 1.078 | 1.082 | 1.086 | 1.090 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 0.964 |
| 0.965 | 1.075 | 1.079 | 1.083 | 1.087 | 1.091 | 1.095 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 0.965 |
| 0.966 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.122 | 0.966 |
| 0.967 | 1.077 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.124 | 0.967 |
| 0.968 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 1.125 | 0.968 |
| 0.969 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 0.969 |
| 0.970 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.124 | 1.127 | 0.970 |
| 0.971 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.121 | 1.125 | 1.129 | 0.971 |
| 0.972 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 1.130 | 0.972 |
| 0.973 | 1.085 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.131 | 0.973 |
| 0.974 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 0.974 |
| 0.975 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.110 | 1.114 | 1.118 | 1.122 | 1.126 | 1.130 | 1.133 | 0.975 |
| 0.976 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.119 | 1.123 | 1.127 | 1.131 | 1.135 | 0.976 |
| 0.977 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.124 | 1.128 | 1.132 | 1.136 | 0.977 |
| 0.978 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 0.978 |
| 0.979 | 1.092 | 1.096 | 1.100 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 1.127 | 1.131 | 1.135 | 1.138 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | -6 | -4 | -2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.082 | 1.086 | 1.089 | 1.093 | 1.096 | 1.100 | 1.103 | 1.107 | 1.110 | 1.114 | 1.117 | 1.121 | 1.124 | 0.930 |
| 0.931 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 1.108 | 1.112 | 1.115 | 1.119 | 1.122 | 1.126 | 0.931 |
| 0.932 | 1.085 | 1.088 | 1.092 | 1.095 | 1.099 | 1.102 | 1.106 | 1.109 | 1.113 | 1.116 | 1.120 | 1.123 | 1.127 | 0.932 |
| 0.933 | 1.086 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 1.107 | 1.111 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 0.933 |
| 0.934 | 1.087 | 1.091 | 1.094 | 1.098 | 1.101 | 1.105 | 1.108 | 1.112 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 0.934 |
| 0.935 | 1.088 | 1.092 | 1.095 | 1.099 | 1.103 | 1.106 | 1.110 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 0.935 |
| 0.936 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 1.107 | 1.111 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 1.132 | 0.936 |
| 0.937 | 1.091 | 1.094 | 1.098 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.119 | 1.123 | 1.126 | 1.130 | 1.133 | 0.937 |
| 0.938 | 1.092 | 1.095 | 1.099 | 1.103 | 1.106 | 1.110 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 0.938 |
| 0.939 | 1.093 | 1.097 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 1.118 | 1.122 | 1.125 | 1.129 | 1.132 | 1.136 | 0.939 |
| 0.940 | 1.094 | 1.098 | 1.102 | 1.105 | 1.109 | 1.112 | 1.116 | 1.119 | 1.123 | 1.127 | 1.130 | 1.134 | 1.137 | 0.940 |
| 0.941 | 1.096 | 1.099 | 1.103 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 1.138 | 0.941 |
| 0.942 | 1.097 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 1.129 | 1.133 | 1.136 | 1.140 | 0.942 |
| 0.943 | 1.098 | 1.102 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.130 | 1.134 | 1.137 | 1.141 | 0.943 |
| 0.944 | 1.099 | 1.103 | 1.107 | 1.110 | 1.114 | 1.117 | 1.121 | 1.124 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 0.944 |
| 0.945 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 0.945 |
| 0.946 | 1.102 | 1.105 | 1.109 | 1.113 | 1.116 | 1.120 | 1.123 | 1.127 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 0.946 |
| 0.947 | 1.103 | 1.107 | 1.110 | 1.114 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 1.146 | 0.947 |
| 0.948 | 1.104 | 1.108 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 0.948 |
| 0.949 | 1.105 | 1.109 | 1.113 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 0.949 |
| 0.950 | 1.107 | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 0.950 |
| 0.951 | 1.108 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.140 | 1.144 | 1.148 | 1.151 | 0.951 |
| 0.952 | 1.109 | 1.113 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 0.952 |
| 0.953 | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.154 | 0.953 |
| 0.954 | 1.111 | 1.115 | 1.119 | 1.123 | 1.126 | 1.130 | 1.133 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 0.954 |
| 0.955 | 1.113 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.153 | 1.156 | 0.955 |
| 0.956 | 1.114 | 1.118 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 0.956 |
| 0.957 | 1.115 | 1.119 | 1.123 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.144 | 1.148 | 1.152 | 1.155 | 1.159 | 0.957 |
| 0.958 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 0.958 |
| 0.959 | 1.118 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 0.959 |
| 0.960 | 1.119 | 1.123 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.163 | 0.960 |
| 0.961 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.157 | 1.160 | 1.164 | 0.961 |
| 0.962 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 0.962 |
| 0.963 | 1.123 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 0.963 |
| 0.964 | 1.124 | 1.127 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.168 | 0.964 |
| 0.965 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.165 | 1.169 | 0.965 |
| 0.966 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.167 | 1.170 | 0.966 |
| 0.967 | 1.127 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 0.967 |
| 0.968 | 1.129 | 1.132 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 0.968 |
| 0.969 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 0.969 |
| 0.970 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 1.175 | 0.970 |
| 0.971 | 1.132 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 1.177 | 0.971 |
| 0.972 | 1.134 | 1.137 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 0.972 |
| 0.973 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 0.973 |
| 0.974 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 1.177 | 1.180 | 0.974 |
| 0.975 | 1.137 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 1.182 | 0.975 |
| 0.976 | 1.138 | 1.142 | 1.146 | 1.150 | 1.154 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 0.976 |
| 0.977 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.184 | 0.977 |
| 0.978 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 0.978 |
| 0.979 | 1.142 | 1.146 | 1.150 | 1.154 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 1.187 | 0.979 |

| TEMPERATURE °C Flow rate m3/min (actual) | | | | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Po/Pa | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | Po/Pa |
| 0.930 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 1.138 | 1.141 | 1.145 | 1.148 | 1.151 | 1.155 | 1.158 | 1.161 | 0.930 |
| 0.931 | 1.122 | 1.126 | 1.129 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 0.931 |
| 0.932 | 1.123 | 1.127 | 1.130 | 1.134 | 1.137 | 1.141 | 1.144 | 1.147 | 1.151 | 1.154 | 1.157 | 1.161 | 1.164 | 0.932 |
| 0.933 | 1.125 | 1.128 | 1.132 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 0.933 |
| 0.934 | 1.126 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.163 | 1.167 | 0.934 |
| 0.935 | 1.127 | 1.131 | 1.134 | 1.138 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 1.161 | 1.165 | 1.168 | 0.935 |
| 0.936 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 0.936 |
| 0.937 | 1.130 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.167 | 1.171 | 0.937 |
| 0.938 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 0.938 |
| 0.939 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 0.939 |
| 0.940 | 1.134 | 1.137 | 1.140 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 0.940 |
| 0.941 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 0.941 |
| 0.942 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 0.942 |
| 0.943 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 0.943 |
| 0.944 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 0.944 |
| 0.945 | 1.140 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 1.178 | 1.181 | 0.945 |
| 0.946 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 0.946 |
| 0.947 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 0.947 |
| 0.948 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 1.182 | 1.185 | 0.948 |
| 0.949 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 0.949 |
| 0.950 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.184 | 1.188 | 0.950 |
| 0.951 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 0.951 |
| 0.952 | 1.149 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 0.952 |
| 0.953 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 0.953 |
| 0.954 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 0.954 |
| 0.955 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.194 | 0.955 |
| 0.956 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 0.956 |
| 0.957 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 0.957 |
| 0.958 | 1.156 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 1.195 | 1.198 | 0.958 |
| 0.959 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 0.959 |
| 0.960 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 0.960 |
| 0.961 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 0.961 |
| 0.962 | 1.161 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 0.962 |
| 0.963 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.201 | 1.205 | 0.963 |
| 0.964 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 0.964 |
| 0.965 | 1.165 | 1.169 | 1.172 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 0.965 |
| 0.966 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 0.966 |
| 0.967 | 1.168 | 1.171 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 0.967 |
| 0.968 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 0.968 |
| 0.969 | 1.170 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 0.969 |
| 0.970 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 0.970 |
| 0.971 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 0.971 |
| 0.972 | 1.174 | 1.178 | 1.181 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 0.972 |
| 0.973 | 1.175 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 0.973 |
| 0.974 | 1.177 | 1.180 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 0.974 |
| 0.975 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 0.975 |
| 0.976 | 1.179 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 0.976 |
| 0.977 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 0.977 |
| 0.978 | 1.182 | 1.185 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 0.978 |
| 0.979 | 1.183 | 1.187 | 1.190 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.223 | 1.226 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.138 | 1.141 | 1.145 | 1.148 | 1.151 | 1.155 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 1.178 | 0.930 |
| 0.931 | 1.139 | 1.143 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 0.931 |
| 0.932 | 1.141 | 1.144 | 1.147 | 1.151 | 1.154 | 1.157 | 1.161 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 1.181 | 0.932 |
| 0.933 | 1.142 | 1.145 | 1.149 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 1.182 | 0.933 |
| 0.934 | 1.143 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 0.934 |
| 0.935 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 1.185 | 0.935 |
| 0.936 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 1.183 | 1.186 | 0.936 |
| 0.937 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 1.181 | 1.184 | 1.187 | 0.937 |
| 0.938 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 1.182 | 1.185 | 1.189 | 0.938 |
| 0.939 | 1.150 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 1.187 | 1.190 | 0.939 |
| 0.940 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 0.940 |
| 0.941 | 1.152 | 1.156 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 1.183 | 1.186 | 1.189 | 1.193 | 0.941 |
| 0.942 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 1.181 | 1.184 | 1.187 | 1.191 | 1.194 | 0.942 |
| 0.943 | 1.155 | 1.158 | 1.162 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.185 | 1.189 | 1.192 | 1.195 | 0.943 |
| 0.944 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 1.187 | 1.190 | 1.193 | 1.197 | 0.944 |
| 0.945 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 1.195 | 1.198 | 0.945 |
| 0.946 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.189 | 1.193 | 1.196 | 1.199 | 0.946 |
| 0.947 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.197 | 1.201 | 0.947 |
| 0.948 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.195 | 1.199 | 1.202 | 0.948 |
| 0.949 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.203 | 0.949 |
| 0.950 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.201 | 1.205 | 0.950 |
| 0.951 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.199 | 1.203 | 1.206 | 0.951 |
| 0.952 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.207 | 0.952 |
| 0.953 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.205 | 1.209 | 0.953 |
| 0.954 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 0.954 |
| 0.955 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.211 | 0.955 |
| 0.956 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.209 | 1.213 | 0.956 |
| 0.957 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 0.957 |
| 0.958 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.215 | 0.958 |
| 0.959 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 0.959 |
| 0.960 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 0.960 |
| 0.961 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.219 | 0.961 |
| 0.962 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 0.962 |
| 0.963 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 0.963 |
| 0.964 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.223 | 0.964 |
| 0.965 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 0.965 |
| 0.966 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 0.966 |
| 0.967 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.227 | 0.967 |
| 0.968 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.218 | 1.222 | 1.225 | 1.229 | 0.968 |
| 0.969 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 0.969 |
| 0.970 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 1.231 | 0.970 |
| 0.971 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 1.229 | 1.233 | 0.971 |
| 0.972 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 1.231 | 1.234 | 0.972 |
| 0.973 | 1.193 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.229 | 1.232 | 1.235 | 0.973 |
| 0.974 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 1.233 | 1.237 | 0.974 |
| 0.975 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 1.231 | 1.235 | 1.238 | 0.975 |
| 0.976 | 1.197 | 1.201 | 1.204 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 1.229 | 1.233 | 1.236 | 1.239 | 0.976 |
| 0.977 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 1.234 | 1.237 | 1.241 | 0.977 |
| 0.978 | 1.200 | 1.203 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 1.232 | 1.235 | 1.239 | 1.242 | 0.978 |
| 0.979 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.223 | 1.226 | 1.230 | 1.233 | 1.236 | 1.240 | 1.243 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | -12 | -8 | -4 | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 37.02 | 37.17 | 37.31 | 37.46 | 37.60 | 37.74 | 37.89 | 38.03 | 38.17 | 38.31 | 38.45 | 38.59 | 38.73 | 0.930 |
| 0.931 | 37.06 | 37.21 | 37.35 | 37.50 | 37.64 | 37.79 | 37.93 | 38.07 | 38.21 | 38.35 | 38.50 | 38.64 | 38.77 | 0.931 |
| 0.932 | 37.10 | 37.25 | 37.40 | 37.54 | 37.69 | 37.83 | 37.97 | 38.11 | 38.26 | 38.40 | 38.54 | 38.68 | 38.82 | 0.932 |
| 0.933 | 37.15 | 37.29 | 37.44 | 37.58 | 37.73 | 37.87 | 38.02 | 38.16 | 38.30 | 38.44 | 38.58 | 38.72 | 38.86 | 0.933 |
| 0.934 | 37.19 | 37.33 | 37.48 | 37.63 | 37.77 | 37.91 | 38.06 | 38.20 | 38.34 | 38.48 | 38.63 | 38.77 | 38.91 | 0.934 |
| 0.935 | 37.23 | 37.38 | 37.52 | 37.67 | 37.81 | 37.96 | 38.10 | 38.24 | 38.39 | 38.53 | 38.67 | 38.81 | 38.95 | 0.935 |
| 0.936 | 37.27 | 37.42 | 37.57 | 37.71 | 37.86 | 38.00 | 38.14 | 38.29 | 38.43 | 38.57 | 38.71 | 38.85 | 38.99 | 0.936 |
| 0.937 | 37.31 | 37.46 | 37.61 | 37.75 | 37.90 | 38.04 | 38.19 | 38.33 | 38.47 | 38.62 | 38.76 | 38.90 | 39.04 | 0.937 |
| 0.938 | 37.36 | 37.50 | 37.65 | 37.80 | 37.94 | 38.09 | 38.23 | 38.37 | 38.52 | 38.66 | 38.80 | 38.94 | 39.08 | 0.938 |
| 0.939 | 37.40 | 37.55 | 37.69 | 37.84 | 37.98 | 38.13 | 38.27 | 38.42 | 38.56 | 38.70 | 38.84 | 38.98 | 39.13 | 0.939 |
| 0.940 | 37.44 | 37.59 | 37.73 | 37.88 | 38.03 | 38.17 | 38.32 | 38.46 | 38.60 | 38.75 | 38.89 | 39.03 | 39.17 | 0.940 |
| 0.941 | 37.48 | 37.63 | 37.78 | 37.92 | 38.07 | 38.21 | 38.36 | 38.50 | 38.65 | 38.79 | 38.93 | 39.07 | 39.21 | 0.941 |
| 0.942 | 37.52 | 37.67 | 37.82 | 37.97 | 38.11 | 38.26 | 38.40 | 38.55 | 38.69 | 38.83 | 38.97 | 39.12 | 39.26 | 0.942 |
| 0.943 | 37.57 | 37.71 | 37.86 | 38.01 | 38.15 | 38.30 | 38.44 | 38.59 | 38.73 | 38.88 | 39.02 | 39.16 | 39.30 | 0.943 |
| 0.944 | 37.61 | 37.76 | 37.90 | 38.05 | 38.20 | 38.34 | 38.49 | 38.63 | 38.78 | 38.92 | 39.06 | 39.20 | 39.35 | 0.944 |
| 0.945 | 37.65 | 37.80 | 37.95 | 38.09 | 38.24 | 38.39 | 38.53 | 38.67 | 38.82 | 38.96 | 39.11 | 39.25 | 39.39 | 0.945 |
| 0.946 | 37.69 | 37.84 | 37.99 | 38.14 | 38.28 | 38.43 | 38.57 | 38.72 | 38.86 | 39.01 | 39.15 | 39.29 | 39.43 | 0.946 |
| 0.947 | 37.73 | 37.88 | 38.03 | 38.18 | 38.32 | 38.47 | 38.62 | 38.76 | 38.91 | 39.05 | 39.19 | 39.33 | 39.48 | 0.947 |
| 0.948 | 37.78 | 37.92 | 38.07 | 38.22 | 38.37 | 38.51 | 38.66 | 38.80 | 38.95 | 39.09 | 39.24 | 39.38 | 39.52 | 0.948 |
| 0.949 | 37.82 | 37.97 | 38.11 | 38.26 | 38.41 | 38.56 | 38.70 | 38.85 | 38.99 | 39.14 | 39.28 | 39.42 | 39.56 | 0.949 |
| 0.950 | 37.86 | 38.01 | 38.16 | 38.30 | 38.45 | 38.60 | 38.75 | 38.89 | 39.04 | 39.18 | 39.32 | 39.47 | 39.61 | 0.950 |
| 0.951 | 37.90 | 38.05 | 38.20 | 38.35 | 38.49 | 38.64 | 38.79 | 38.93 | 39.08 | 39.22 | 39.37 | 39.51 | 39.65 | 0.951 |
| 0.952 | 37.94 | 38.09 | 38.24 | 38.39 | 38.54 | 38.68 | 38.83 | 38.98 | 39.12 | 39.27 | 39.41 | 39.55 | 39.70 | 0.952 |
| 0.953 | 37.99 | 38.13 | 38.28 | 38.43 | 38.58 | 38.73 | 38.87 | 39.02 | 39.17 | 39.31 | 39.45 | 39.60 | 39.74 | 0.953 |
| 0.954 | 38.03 | 38.18 | 38.33 | 38.47 | 38.62 | 38.77 | 38.92 | 39.06 | 39.21 | 39.35 | 39.50 | 39.64 | 39.78 | 0.954 |
| 0.955 | 38.07 | 38.22 | 38.37 | 38.52 | 38.67 | 38.81 | 38.96 | 39.11 | 39.25 | 39.40 | 39.54 | 39.68 | 39.83 | 0.955 |
| 0.956 | 38.11 | 38.26 | 38.41 | 38.56 | 38.71 | 38.86 | 39.00 | 39.15 | 39.29 | 39.44 | 39.58 | 39.73 | 39.87 | 0.956 |
| 0.957 | 38.15 | 38.30 | 38.45 | 38.60 | 38.75 | 38.90 | 39.05 | 39.19 | 39.34 | 39.48 | 39.63 | 39.77 | 39.92 | 0.957 |
| 0.958 | 38.19 | 38.35 | 38.50 | 38.64 | 38.79 | 38.94 | 39.09 | 39.24 | 39.38 | 39.53 | 39.67 | 39.82 | 39.96 | 0.958 |
| 0.959 | 38.24 | 38.39 | 38.54 | 38.69 | 38.84 | 38.98 | 39.13 | 39.28 | 39.42 | 39.57 | 39.72 | 39.86 | 40.00 | 0.959 |
| 0.960 | 38.28 | 38.43 | 38.58 | 38.73 | 38.88 | 39.03 | 39.17 | 39.32 | 39.47 | 39.61 | 39.76 | 39.90 | 40.05 | 0.960 |
| 0.961 | 38.32 | 38.47 | 38.62 | 38.77 | 38.92 | 39.07 | 39.22 | 39.36 | 39.51 | 39.66 | 39.80 | 39.95 | 40.09 | 0.961 |
| 0.962 | 38.36 | 38.51 | 38.66 | 38.81 | 38.96 | 39.11 | 39.26 | 39.41 | 39.55 | 39.70 | 39.85 | 39.99 | 40.14 | 0.962 |
| 0.963 | 38.40 | 38.56 | 38.71 | 38.86 | 39.01 | 39.16 | 39.30 | 39.45 | 39.60 | 39.74 | 39.89 | 40.03 | 40.18 | 0.963 |
| 0.964 | 38.45 | 38.60 | 38.75 | 38.90 | 39.05 | 39.20 | 39.35 | 39.49 | 39.64 | 39.79 | 39.93 | 40.08 | 40.22 | 0.964 |
| 0.965 | 38.49 | 38.64 | 38.79 | 38.94 | 39.09 | 39.24 | 39.39 | 39.54 | 39.68 | 39.83 | 39.98 | 40.12 | 40.27 | 0.965 |
| 0.966 | 38.53 | 38.68 | 38.83 | 38.98 | 39.13 | 39.28 | 39.43 | 39.58 | 39.73 | 39.87 | 40.02 | 40.17 | 40.31 | 0.966 |
| 0.967 | 38.57 | 38.73 | 38.88 | 39.03 | 39.18 | 39.33 | 39.48 | 39.62 | 39.77 | 39.92 | 40.06 | 40.21 | 40.36 | 0.967 |
| 0.968 | 38.61 | 38.77 | 38.92 | 39.07 | 39.22 | 39.37 | 39.52 | 39.67 | 39.81 | 39.96 | 40.11 | 40.25 | 40.40 | 0.968 |
| 0.969 | 38.66 | 38.81 | 38.96 | 39.11 | 39.26 | 39.41 | 39.56 | 39.71 | 39.86 | 40.01 | 40.15 | 40.30 | 40.44 | 0.969 |
| 0.970 | 38.70 | 38.85 | 39.00 | 39.15 | 39.31 | 39.46 | 39.60 | 39.75 | 39.90 | 40.05 | 40.20 | 40.34 | 40.49 | 0.970 |
| 0.971 | 38.74 | 38.89 | 39.05 | 39.20 | 39.35 | 39.50 | 39.65 | 39.80 | 39.94 | 40.09 | 40.24 | 40.39 | 40.53 | 0.971 |
| 0.972 | 38.78 | 38.94 | 39.09 | 39.24 | 39.39 | 39.54 | 39.69 | 39.84 | 39.99 | 40.14 | 40.28 | 40.43 | 40.57 | 0.972 |
| 0.973 | 38.82 | 38.98 | 39.13 | 39.28 | 39.43 | 39.58 | 39.73 | 39.88 | 40.03 | 40.18 | 40.33 | 40.47 | 40.62 | 0.973 |
| 0.974 | 38.87 | 39.02 | 39.17 | 39.32 | 39.48 | 39.63 | 39.78 | 39.93 | 40.07 | 40.22 | 40.37 | 40.52 | 40.66 | 0.974 |
| 0.975 | 38.91 | 39.06 | 39.22 | 39.37 | 39.52 | 39.67 | 39.82 | 39.97 | 40.12 | 40.27 | 40.41 | 40.56 | 40.71 | 0.975 |
| 0.976 | 38.95 | 39.10 | 39.26 | 39.41 | 39.56 | 39.71 | 39.86 | 40.01 | 40.16 | 40.31 | 40.46 | 40.60 | 40.75 | 0.976 |
| 0.977 | 38.99 | 39.15 | 39.30 | 39.45 | 39.60 | 39.76 | 39.91 | 40.06 | 40.20 | 40.35 | 40.50 | 40.65 | 40.79 | 0.977 |
| 0.978 | 39.04 | 39.19 | 39.34 | 39.49 | 39.65 | 39.80 | 39.95 | 40.10 | 40.25 | 40.40 | 40.54 | 40.69 | 40.84 | 0.978 |
| 0.979 | 39.08 | 39.23 | 39.38 | 39.54 | 39.69 | 39.84 | 39.99 | 40.14 | 40.29 | 40.44 | 40.59 | 40.74 | 40.88 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 18 | 22 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 58 | 62 | 66 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 38.10 | 38.24 | 38.38 | 38.52 | 38.66 | 38.80 | 38.94 | 39.08 | 39.21 | 39.35 | 39.49 | 39.62 | 39.76 | 0.930 |
| 0.931 | 38.14 | 38.28 | 38.43 | 38.57 | 38.71 | 38.84 | 38.98 | 39.12 | 39.26 | 39.40 | 39.53 | 39.67 | 39.80 | 0.931 |
| 0.932 | 38.19 | 38.33 | 38.47 | 38.61 | 38.75 | 38.89 | 39.03 | 39.17 | 39.30 | 39.44 | 39.58 | 39.71 | 39.85 | 0.932 |
| 0.933 | 38.23 | 38.37 | 38.51 | 38.65 | 38.79 | 38.93 | 39.07 | 39.21 | 39.35 | 39.48 | 39.62 | 39.76 | 39.89 | 0.933 |
| 0.934 | 38.27 | 38.41 | 38.56 | 38.70 | 38.84 | 38.98 | 39.12 | 39.25 | 39.39 | 39.53 | 39.67 | 39.80 | 39.94 | 0.934 |
| 0.935 | 38.32 | 38.46 | 38.60 | 38.74 | 38.88 | 39.02 | 39.16 | 39.30 | 39.44 | 39.57 | 39.71 | 39.85 | 39.98 | 0.935 |
| 0.936 | 38.36 | 38.50 | 38.64 | 38.78 | 38.92 | 39.06 | 39.20 | 39.34 | 39.48 | 39.62 | 39.76 | 39.89 | 40.03 | 0.936 |
| 0.937 | 38.40 | 38.54 | 38.69 | 38.83 | 38.97 | 39.11 | 39.25 | 39.39 | 39.52 | 39.66 | 39.80 | 39.94 | 40.07 | 0.937 |
| 0.938 | 38.44 | 38.59 | 38.73 | 38.87 | 39.01 | 39.15 | 39.29 | 39.43 | 39.57 | 39.71 | 39.84 | 39.98 | 40.12 | 0.938 |
| 0.939 | 38.49 | 38.63 | 38.77 | 38.91 | 39.06 | 39.20 | 39.34 | 39.47 | 39.61 | 39.75 | 39.89 | 40.03 | 40.16 | 0.939 |
| 0.940 | 38.53 | 38.67 | 38.82 | 38.96 | 39.10 | 39.24 | 39.38 | 39.52 | 39.66 | 39.80 | 39.93 | 40.07 | 40.21 | 0.940 |
| 0.941 | 38.57 | 38.72 | 38.86 | 39.00 | 39.14 | 39.28 | 39.42 | 39.56 | 39.70 | 39.84 | 39.98 | 40.12 | 40.25 | 0.941 |
| 0.942 | 38.62 | 38.76 | 38.90 | 39.05 | 39.19 | 39.33 | 39.47 | 39.61 | 39.75 | 39.89 | 40.02 | 40.16 | 40.30 | 0.942 |
| 0.943 | 38.66 | 38.80 | 38.95 | 39.09 | 39.23 | 39.37 | 39.51 | 39.65 | 39.79 | 39.93 | 40.07 | 40.21 | 40.34 | 0.943 |
| 0.944 | 38.70 | 38.85 | 38.99 | 39.13 | 39.27 | 39.42 | 39.56 | 39.70 | 39.84 | 39.97 | 40.11 | 40.25 | 40.39 | 0.944 |
| 0.945 | 38.75 | 38.89 | 39.03 | 39.18 | 39.32 | 39.46 | 39.60 | 39.74 | 39.88 | 40.02 | 40.16 | 40.30 | 40.43 | 0.945 |
| 0.946 | 38.79 | 38.93 | 39.08 | 39.22 | 39.36 | 39.50 | 39.64 | 39.78 | 39.92 | 40.06 | 40.20 | 40.34 | 40.48 | 0.946 |
| 0.947 | 38.83 | 38.98 | 39.12 | 39.26 | 39.41 | 39.55 | 39.69 | 39.83 | 39.97 | 40.11 | 40.25 | 40.39 | 40.52 | 0.947 |
| 0.948 | 38.88 | 39.02 | 39.16 | 39.31 | 39.45 | 39.59 | 39.73 | 39.87 | 40.01 | 40.15 | 40.29 | 40.43 | 40.57 | 0.948 |
| 0.949 | 38.92 | 39.06 | 39.21 | 39.35 | 39.49 | 39.64 | 39.78 | 39.92 | 40.06 | 40.20 | 40.34 | 40.48 | 40.61 | 0.949 |
| 0.950 | 38.96 | 39.11 | 39.25 | 39.39 | 39.54 | 39.68 | 39.82 | 39.96 | 40.10 | 40.24 | 40.38 | 40.52 | 40.66 | 0.950 |
| 0.951 | 39.01 | 39.15 | 39.29 | 39.44 | 39.58 | 39.72 | 39.87 | 40.01 | 40.15 | 40.29 | 40.43 | 40.57 | 40.70 | 0.951 |
| 0.952 | 39.05 | 39.19 | 39.34 | 39.48 | 39.62 | 39.77 | 39.91 | 40.05 | 40.19 | 40.33 | 40.47 | 40.61 | 40.75 | 0.952 |
| 0.953 | 39.09 | 39.24 | 39.38 | 39.53 | 39.67 | 39.81 | 39.95 | 40.09 | 40.24 | 40.38 | 40.52 | 40.66 | 40.79 | 0.953 |
| 0.954 | 39.14 | 39.28 | 39.43 | 39.57 | 39.71 | 39.86 | 40.00 | 40.14 | 40.28 | 40.42 | 40.56 | 40.70 | 40.84 | 0.954 |
| 0.955 | 39.18 | 39.32 | 39.47 | 39.61 | 39.76 | 39.90 | 40.04 | 40.18 | 40.32 | 40.47 | 40.61 | 40.75 | 40.88 | 0.955 |
| 0.956 | 39.22 | 39.37 | 39.51 | 39.66 | 39.80 | 39.94 | 40.09 | 40.23 | 40.37 | 40.51 | 40.65 | 40.79 | 40.93 | 0.956 |
| 0.957 | 39.27 | 39.41 | 39.56 | 39.70 | 39.84 | 39.99 | 40.13 | 40.27 | 40.41 | 40.55 | 40.70 | 40.83 | 40.97 | 0.957 |
| 0.958 | 39.31 | 39.45 | 39.60 | 39.74 | 39.89 | 40.03 | 40.17 | 40.32 | 40.46 | 40.60 | 40.74 | 40.88 | 41.02 | 0.958 |
| 0.959 | 39.35 | 39.50 | 39.64 | 39.79 | 39.93 | 40.08 | 40.22 | 40.36 | 40.50 | 40.64 | 40.78 | 40.92 | 41.06 | 0.959 |
| 0.960 | 39.39 | 39.54 | 39.69 | 39.83 | 39.98 | 40.12 | 40.26 | 40.41 | 40.55 | 40.69 | 40.83 | 40.97 | 41.11 | 0.960 |
| 0.961 | 39.44 | 39.58 | 39.73 | 39.88 | 40.02 | 40.16 | 40.31 | 40.45 | 40.59 | 40.73 | 40.87 | 41.01 | 41.15 | 0.961 |
| 0.962 | 39.48 | 39.63 | 39.77 | 39.92 | 40.06 | 40.21 | 40.35 | 40.49 | 40.64 | 40.78 | 40.92 | 41.06 | 41.20 | 0.962 |
| 0.963 | 39.52 | 39.67 | 39.82 | 39.96 | 40.11 | 40.25 | 40.40 | 40.54 | 40.68 | 40.82 | 40.96 | 41.10 | 41.24 | 0.963 |
| 0.964 | 39.57 | 39.71 | 39.86 | 40.01 | 40.15 | 40.30 | 40.44 | 40.58 | 40.73 | 40.87 | 41.01 | 41.15 | 41.29 | 0.964 |
| 0.965 | 39.61 | 39.76 | 39.90 | 40.05 | 40.19 | 40.34 | 40.48 | 40.63 | 40.77 | 40.91 | 41.05 | 41.19 | 41.34 | 0.965 |
| 0.966 | 39.65 | 39.80 | 39.95 | 40.09 | 40.24 | 40.38 | 40.53 | 40.67 | 40.81 | 40.96 | 41.10 | 41.24 | 41.38 | 0.966 |
| 0.967 | 39.70 | 39.84 | 39.99 | 40.14 | 40.28 | 40.43 | 40.57 | 40.72 | 40.86 | 41.00 | 41.14 | 41.28 | 41.43 | 0.967 |
| 0.968 | 39.74 | 39.89 | 40.03 | 40.18 | 40.33 | 40.47 | 40.62 | 40.76 | 40.90 | 41.05 | 41.19 | 41.33 | 41.47 | 0.968 |
| 0.969 | 39.78 | 39.93 | 40.08 | 40.22 | 40.37 | 40.52 | 40.66 | 40.80 | 40.95 | 41.09 | 41.23 | 41.37 | 41.52 | 0.969 |
| 0.970 | 39.83 | 39.97 | 40.12 | 40.27 | 40.41 | 40.56 | 40.70 | 40.85 | 40.99 | 41.13 | 41.28 | 41.42 | 41.56 | 0.970 |
| 0.971 | 39.87 | 40.02 | 40.17 | 40.31 | 40.46 | 40.60 | 40.75 | 40.89 | 41.04 | 41.18 | 41.32 | 41.46 | 41.61 | 0.971 |
| 0.972 | 39.91 | 40.06 | 40.21 | 40.36 | 40.50 | 40.65 | 40.79 | 40.94 | 41.08 | 41.22 | 41.37 | 41.51 | 41.65 | 0.972 |
| 0.973 | 39.96 | 40.11 | 40.25 | 40.40 | 40.55 | 40.69 | 40.84 | 40.98 | 41.13 | 41.27 | 41.41 | 41.55 | 41.70 | 0.973 |
| 0.974 | 40.00 | 40.15 | 40.30 | 40.44 | 40.59 | 40.74 | 40.88 | 41.03 | 41.17 | 41.31 | 41.46 | 41.60 | 41.74 | 0.974 |
| 0.975 | 40.04 | 40.19 | 40.34 | 40.49 | 40.63 | 40.78 | 40.93 | 41.07 | 41.21 | 41.36 | 41.50 | 41.64 | 41.79 | 0.975 |
| 0.976 | 40.09 | 40.24 | 40.38 | 40.53 | 40.68 | 40.82 | 40.97 | 41.11 | 41.26 | 41.40 | 41.55 | 41.69 | 41.83 | 0.976 |
| 0.977 | 40.13 | 40.28 | 40.43 | 40.57 | 40.72 | 40.87 | 41.01 | 41.16 | 41.30 | 41.45 | 41.59 | 41.73 | 41.88 | 0.977 |
| 0.978 | 40.17 | 40.32 | 40.47 | 40.62 | 40.77 | 40.91 | 41.06 | 41.20 | 41.35 | 41.49 | 41.64 | 41.78 | 41.92 | 0.978 |
| 0.979 | 40.22 | 40.37 | 40.51 | 40.66 | 40.81 | 40.96 | 41.10 | 41.25 | 41.39 | 41.54 | 41.68 | 41.82 | 41.97 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 48 | 52 | 56 | 60 | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 39.15 | 39.28 | 39.42 | 39.55 | 39.69 | 39.83 | 39.96 | 40.09 | 40.23 | 40.36 | 40.49 | 40.62 | 40.76 | 0.930 |
| 0.931 | 39.19 | 39.33 | 39.46 | 39.60 | 39.74 | 39.87 | 40.00 | 40.14 | 40.27 | 40.41 | 40.54 | 40.67 | 40.80 | 0.931 |
| 0.932 | 39.23 | 39.37 | 39.51 | 39.64 | 39.78 | 39.92 | 40.05 | 40.18 | 40.32 | 40.45 | 40.58 | 40.72 | 40.85 | 0.932 |
| 0.933 | 39.28 | 39.42 | 39.55 | 39.69 | 39.83 | 39.96 | 40.10 | 40.23 | 40.36 | 40.50 | 40.63 | 40.76 | 40.89 | 0.933 |
| 0.934 | 39.32 | 39.46 | 39.60 | 39.73 | 39.87 | 40.01 | 40.14 | 40.28 | 40.41 | 40.54 | 40.68 | 40.81 | 40.94 | 0.934 |
| 0.935 | 39.37 | 39.50 | 39.64 | 39.78 | 39.92 | 40.05 | 40.19 | 40.32 | 40.45 | 40.59 | 40.72 | 40.85 | 40.99 | 0.935 |
| 0.936 | 39.41 | 39.55 | 39.69 | 39.82 | 39.96 | 40.10 | 40.23 | 40.37 | 40.50 | 40.63 | 40.77 | 40.90 | 41.03 | 0.936 |
| 0.937 | 39.46 | 39.59 | 39.73 | 39.87 | 40.00 | 40.14 | 40.28 | 40.41 | 40.55 | 40.68 | 40.81 | 40.95 | 41.08 | 0.937 |
| 0.938 | 39.50 | 39.64 | 39.78 | 39.91 | 40.05 | 40.19 | 40.32 | 40.46 | 40.59 | 40.73 | 40.86 | 40.99 | 41.13 | 0.938 |
| 0.939 | 39.54 | 39.68 | 39.82 | 39.96 | 40.09 | 40.23 | 40.37 | 40.50 | 40.64 | 40.77 | 40.91 | 41.04 | 41.17 | 0.939 |
| 0.940 | 39.59 | 39.73 | 39.87 | 40.00 | 40.14 | 40.28 | 40.41 | 40.55 | 40.68 | 40.82 | 40.95 | 41.08 | 41.22 | 0.940 |
| 0.941 | 39.63 | 39.77 | 39.91 | 40.05 | 40.18 | 40.32 | 40.46 | 40.59 | 40.73 | 40.86 | 41.00 | 41.13 | 41.26 | 0.941 |
| 0.942 | 39.68 | 39.82 | 39.95 | 40.09 | 40.23 | 40.37 | 40.50 | 40.64 | 40.77 | 40.91 | 41.04 | 41.18 | 41.31 | 0.942 |
| 0.943 | 39.72 | 39.86 | 40.00 | 40.14 | 40.27 | 40.41 | 40.55 | 40.68 | 40.82 | 40.95 | 41.09 | 41.22 | 41.36 | 0.943 |
| 0.944 | 39.77 | 39.91 | 40.04 | 40.18 | 40.32 | 40.46 | 40.59 | 40.73 | 40.87 | 41.00 | 41.13 | 41.27 | 41.40 | 0.944 |
| 0.945 | 39.81 | 39.95 | 40.09 | 40.23 | 40.36 | 40.50 | 40.64 | 40.77 | 40.91 | 41.05 | 41.18 | 41.31 | 41.45 | 0.945 |
| 0.946 | 39.85 | 39.99 | 40.13 | 40.27 | 40.41 | 40.55 | 40.68 | 40.82 | 40.96 | 41.09 | 41.23 | 41.36 | 41.49 | 0.946 |
| 0.947 | 39.90 | 40.04 | 40.18 | 40.32 | 40.45 | 40.59 | 40.73 | 40.87 | 41.00 | 41.14 | 41.27 | 41.41 | 41.54 | 0.947 |
| 0.948 | 39.94 | 40.08 | 40.22 | 40.36 | 40.50 | 40.64 | 40.77 | 40.91 | 41.05 | 41.18 | 41.32 | 41.45 | 41.59 | 0.948 |
| 0.949 | 39.99 | 40.13 | 40.27 | 40.41 | 40.54 | 40.68 | 40.82 | 40.96 | 41.09 | 41.23 | 41.36 | 41.50 | 41.63 | 0.949 |
| 0.950 | 40.03 | 40.17 | 40.31 | 40.45 | 40.59 | 40.73 | 40.87 | 41.00 | 41.14 | 41.27 | 41.41 | 41.54 | 41.68 | 0.950 |
| 0.951 | 40.08 | 40.22 | 40.36 | 40.50 | 40.63 | 40.77 | 40.91 | 41.05 | 41.18 | 41.32 | 41.46 | 41.59 | 41.73 | 0.951 |
| 0.952 | 40.12 | 40.26 | 40.40 | 40.54 | 40.68 | 40.82 | 40.96 | 41.09 | 41.23 | 41.37 | 41.50 | 41.64 | 41.77 | 0.952 |
| 0.953 | 40.17 | 40.31 | 40.45 | 40.59 | 40.72 | 40.86 | 41.00 | 41.14 | 41.28 | 41.41 | 41.55 | 41.68 | 41.82 | 0.953 |
| 0.954 | 40.21 | 40.35 | 40.49 | 40.63 | 40.77 | 40.91 | 41.05 | 41.18 | 41.32 | 41.46 | 41.59 | 41.73 | 41.86 | 0.954 |
| 0.955 | 40.25 | 40.40 | 40.54 | 40.68 | 40.81 | 40.95 | 41.09 | 41.23 | 41.37 | 41.50 | 41.64 | 41.78 | 41.91 | 0.955 |
| 0.956 | 40.30 | 40.44 | 40.58 | 40.72 | 40.86 | 41.00 | 41.14 | 41.27 | 41.41 | 41.55 | 41.69 | 41.82 | 41.96 | 0.956 |
| 0.957 | 40.34 | 40.48 | 40.62 | 40.77 | 40.90 | 41.04 | 41.18 | 41.32 | 41.46 | 41.59 | 41.73 | 41.87 | 42.00 | 0.957 |
| 0.958 | 40.39 | 40.53 | 40.67 | 40.81 | 40.95 | 41.09 | 41.23 | 41.37 | 41.50 | 41.64 | 41.78 | 41.91 | 42.05 | 0.958 |
| 0.959 | 40.43 | 40.57 | 40.71 | 40.85 | 40.99 | 41.13 | 41.27 | 41.41 | 41.55 | 41.69 | 41.82 | 41.96 | 42.10 | 0.959 |
| 0.960 | 40.48 | 40.62 | 40.76 | 40.90 | 41.04 | 41.18 | 41.32 | 41.46 | 41.59 | 41.73 | 41.87 | 42.01 | 42.14 | 0.960 |
| 0.961 | 40.52 | 40.66 | 40.80 | 40.94 | 41.08 | 41.22 | 41.36 | 41.50 | 41.64 | 41.78 | 41.92 | 42.05 | 42.19 | 0.961 |
| 0.962 | 40.56 | 40.71 | 40.85 | 40.99 | 41.13 | 41.27 | 41.41 | 41.55 | 41.69 | 41.82 | 41.96 | 42.10 | 42.23 | 0.962 |
| 0.963 | 40.61 | 40.75 | 40.89 | 41.03 | 41.17 | 41.31 | 41.45 | 41.59 | 41.73 | 41.87 | 42.01 | 42.14 | 42.28 | 0.963 |
| 0.964 | 40.65 | 40.80 | 40.94 | 41.08 | 41.22 | 41.36 | 41.50 | 41.64 | 41.78 | 41.92 | 42.05 | 42.19 | 42.33 | 0.964 |
| 0.965 | 40.70 | 40.84 | 40.98 | 41.12 | 41.26 | 41.41 | 41.54 | 41.68 | 41.82 | 41.96 | 42.10 | 42.24 | 42.37 | 0.965 |
| 0.966 | 40.74 | 40.89 | 41.03 | 41.17 | 41.31 | 41.45 | 41.59 | 41.73 | 41.87 | 42.01 | 42.14 | 42.28 | 42.42 | 0.966 |
| 0.967 | 40.79 | 40.93 | 41.07 | 41.21 | 41.35 | 41.50 | 41.64 | 41.78 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 0.967 |
| 0.968 | 40.83 | 40.97 | 41.12 | 41.26 | 41.40 | 41.54 | 41.68 | 41.82 | 41.96 | 42.10 | 42.24 | 42.37 | 42.51 | 0.968 |
| 0.969 | 40.88 | 41.02 | 41.16 | 41.30 | 41.44 | 41.59 | 41.73 | 41.87 | 42.01 | 42.14 | 42.28 | 42.42 | 42.56 | 0.969 |
| 0.970 | 40.92 | 41.06 | 41.21 | 41.35 | 41.49 | 41.63 | 41.77 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 42.60 | 0.970 |
| 0.971 | 40.96 | 41.11 | 41.25 | 41.39 | 41.54 | 41.68 | 41.82 | 41.96 | 42.10 | 42.24 | 42.37 | 42.51 | 42.65 | 0.971 |
| 0.972 | 41.01 | 41.15 | 41.30 | 41.44 | 41.58 | 41.72 | 41.86 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 0.972 |
| 0.973 | 41.05 | 41.20 | 41.34 | 41.48 | 41.63 | 41.77 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 42.60 | 42.74 | 0.973 |
| 0.974 | 41.10 | 41.24 | 41.39 | 41.53 | 41.67 | 41.81 | 41.95 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 0.974 |
| 0.975 | 41.14 | 41.29 | 41.43 | 41.57 | 41.72 | 41.86 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 0.975 |
| 0.976 | 41.19 | 41.33 | 41.47 | 41.62 | 41.76 | 41.90 | 42.04 | 42.18 | 42.33 | 42.46 | 42.60 | 42.74 | 42.88 | 0.976 |
| 0.977 | 41.23 | 41.38 | 41.52 | 41.66 | 41.81 | 41.95 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 0.977 |
| 0.978 | 41.28 | 41.42 | 41.56 | 41.71 | 41.85 | 41.99 | 42.13 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 42.97 | 0.978 |
| 0.979 | 41.32 | 41.46 | 41.61 | 41.75 | 41.90 | 42.04 | 42.18 | 42.32 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 40.09 | 40.23 | 40.36 | 40.49 | 40.62 | 40.76 | 40.89 | 41.02 | 41.15 | 41.28 | 41.41 | 41.54 | 41.66 | 0.930 |
| 0.931 | 40.14 | 40.27 | 40.41 | 40.54 | 40.67 | 40.80 | 40.93 | 41.06 | 41.19 | 41.32 | 41.45 | 41.58 | 41.71 | 0.931 |
| 0.932 | 40.18 | 40.32 | 40.45 | 40.58 | 40.72 | 40.85 | 40.98 | 41.11 | 41.24 | 41.37 | 41.50 | 41.63 | 41.76 | 0.932 |
| 0.933 | 40.23 | 40.36 | 40.50 | 40.63 | 40.76 | 40.89 | 41.03 | 41.16 | 41.29 | 41.42 | 41.55 | 41.68 | 41.81 | 0.933 |
| 0.934 | 40.28 | 40.41 | 40.54 | 40.68 | 40.81 | 40.94 | 41.07 | 41.20 | 41.33 | 41.46 | 41.59 | 41.72 | 41.85 | 0.934 |
| 0.935 | 40.32 | 40.45 | 40.59 | 40.72 | 40.85 | 40.99 | 41.12 | 41.25 | 41.38 | 41.51 | 41.64 | 41.77 | 41.90 | 0.935 |
| 0.936 | 40.37 | 40.50 | 40.63 | 40.77 | 40.90 | 41.03 | 41.16 | 41.30 | 41.43 | 41.56 | 41.69 | 41.82 | 41.95 | 0.936 |
| 0.937 | 40.41 | 40.55 | 40.68 | 40.81 | 40.95 | 41.08 | 41.21 | 41.34 | 41.47 | 41.60 | 41.73 | 41.86 | 41.99 | 0.937 |
| 0.938 | 40.46 | 40.59 | 40.73 | 40.86 | 40.99 | 41.13 | 41.26 | 41.39 | 41.52 | 41.65 | 41.78 | 41.91 | 42.04 | 0.938 |
| 0.939 | 40.50 | 40.64 | 40.77 | 40.91 | 41.04 | 41.17 | 41.30 | 41.44 | 41.57 | 41.70 | 41.83 | 41.96 | 42.09 | 0.939 |
| 0.940 | 40.55 | 40.68 | 40.82 | 40.95 | 41.08 | 41.22 | 41.35 | 41.48 | 41.61 | 41.74 | 41.88 | 42.01 | 42.14 | 0.940 |
| 0.941 | 40.59 | 40.73 | 40.86 | 41.00 | 41.13 | 41.26 | 41.40 | 41.53 | 41.66 | 41.79 | 41.92 | 42.05 | 42.18 | 0.941 |
| 0.942 | 40.64 | 40.77 | 40.91 | 41.04 | 41.18 | 41.31 | 41.44 | 41.58 | 41.71 | 41.84 | 41.97 | 42.10 | 42.23 | 0.942 |
| 0.943 | 40.68 | 40.82 | 40.95 | 41.09 | 41.22 | 41.36 | 41.49 | 41.62 | 41.75 | 41.89 | 42.02 | 42.15 | 42.28 | 0.943 |
| 0.944 | 40.73 | 40.87 | 41.00 | 41.13 | 41.27 | 41.40 | 41.54 | 41.67 | 41.80 | 41.93 | 42.06 | 42.19 | 42.32 | 0.944 |
| 0.945 | 40.77 | 40.91 | 41.05 | 41.18 | 41.31 | 41.45 | 41.58 | 41.71 | 41.85 | 41.98 | 42.11 | 42.24 | 42.37 | 0.945 |
| 0.946 | 40.82 | 40.96 | 41.09 | 41.23 | 41.36 | 41.49 | 41.63 | 41.76 | 41.89 | 42.03 | 42.16 | 42.29 | 42.42 | 0.946 |
| 0.947 | 40.87 | 41.00 | 41.14 | 41.27 | 41.41 | 41.54 | 41.67 | 41.81 | 41.94 | 42.07 | 42.20 | 42.34 | 42.47 | 0.947 |
| 0.948 | 40.91 | 41.05 | 41.18 | 41.32 | 41.45 | 41.59 | 41.72 | 41.85 | 41.99 | 42.12 | 42.25 | 42.38 | 42.51 | 0.948 |
| 0.949 | 40.96 | 41.09 | 41.23 | 41.36 | 41.50 | 41.63 | 41.77 | 41.90 | 42.03 | 42.17 | 42.30 | 42.43 | 42.56 | 0.949 |
| 0.950 | 41.00 | 41.14 | 41.27 | 41.41 | 41.54 | 41.68 | 41.81 | 41.95 | 42.08 | 42.21 | 42.34 | 42.48 | 42.61 | 0.950 |
| 0.951 | 41.05 | 41.18 | 41.32 | 41.46 | 41.59 | 41.73 | 41.86 | 41.99 | 42.13 | 42.26 | 42.39 | 42.52 | 42.65 | 0.951 |
| 0.952 | 41.09 | 41.23 | 41.37 | 41.50 | 41.64 | 41.77 | 41.91 | 42.04 | 42.17 | 42.31 | 42.44 | 42.57 | 42.70 | 0.952 |
| 0.953 | 41.14 | 41.28 | 41.41 | 41.55 | 41.68 | 41.82 | 41.95 | 42.09 | 42.22 | 42.35 | 42.49 | 42.62 | 42.75 | 0.953 |
| 0.954 | 41.18 | 41.32 | 41.46 | 41.59 | 41.73 | 41.86 | 42.00 | 42.13 | 42.27 | 42.40 | 42.53 | 42.66 | 42.80 | 0.954 |
| 0.955 | 41.23 | 41.37 | 41.50 | 41.64 | 41.78 | 41.91 | 42.05 | 42.18 | 42.31 | 42.45 | 42.58 | 42.71 | 42.84 | 0.955 |
| 0.956 | 41.27 | 41.41 | 41.55 | 41.69 | 41.82 | 41.96 | 42.09 | 42.23 | 42.36 | 42.49 | 42.63 | 42.76 | 42.89 | 0.956 |
| 0.957 | 41.32 | 41.46 | 41.59 | 41.73 | 41.87 | 42.00 | 42.14 | 42.27 | 42.41 | 42.54 | 42.67 | 42.81 | 42.94 | 0.957 |
| 0.958 | 41.37 | 41.50 | 41.64 | 41.78 | 41.91 | 42.05 | 42.18 | 42.32 | 42.45 | 42.59 | 42.72 | 42.85 | 42.99 | 0.958 |
| 0.959 | 41.41 | 41.55 | 41.69 | 41.82 | 41.96 | 42.10 | 42.23 | 42.37 | 42.50 | 42.63 | 42.77 | 42.90 | 43.03 | 0.959 |
| 0.960 | 41.46 | 41.59 | 41.73 | 41.87 | 42.01 | 42.14 | 42.28 | 42.41 | 42.55 | 42.68 | 42.81 | 42.95 | 43.08 | 0.960 |
| 0.961 | 41.50 | 41.64 | 41.78 | 41.92 | 42.05 | 42.19 | 42.32 | 42.46 | 42.59 | 42.73 | 42.86 | 42.99 | 43.13 | 0.961 |
| 0.962 | 41.55 | 41.69 | 41.82 | 41.96 | 42.10 | 42.23 | 42.37 | 42.51 | 42.64 | 42.77 | 42.91 | 43.04 | 43.17 | 0.962 |
| 0.963 | 41.59 | 41.73 | 41.87 | 42.01 | 42.14 | 42.28 | 42.42 | 42.55 | 42.69 | 42.82 | 42.96 | 43.09 | 43.22 | 0.963 |
| 0.964 | 41.64 | 41.78 | 41.92 | 42.05 | 42.19 | 42.33 | 42.46 | 42.60 | 42.73 | 42.87 | 43.00 | 43.14 | 43.27 | 0.964 |
| 0.965 | 41.68 | 41.82 | 41.96 | 42.10 | 42.24 | 42.37 | 42.51 | 42.64 | 42.78 | 42.91 | 43.05 | 43.18 | 43.32 | 0.965 |
| 0.966 | 41.73 | 41.87 | 42.01 | 42.14 | 42.28 | 42.42 | 42.56 | 42.69 | 42.83 | 42.96 | 43.10 | 43.23 | 43.36 | 0.966 |
| 0.967 | 41.78 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 42.60 | 42.74 | 42.87 | 43.01 | 43.14 | 43.28 | 43.41 | 0.967 |
| 0.968 | 41.82 | 41.96 | 42.10 | 42.24 | 42.37 | 42.51 | 42.65 | 42.78 | 42.92 | 43.06 | 43.19 | 43.32 | 43.46 | 0.968 |
| 0.969 | 41.87 | 42.01 | 42.14 | 42.28 | 42.42 | 42.56 | 42.69 | 42.83 | 42.97 | 43.10 | 43.24 | 43.37 | 43.51 | 0.969 |
| 0.970 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 42.60 | 42.74 | 42.88 | 43.01 | 43.15 | 43.28 | 43.42 | 43.55 | 0.970 |
| 0.971 | 41.96 | 42.10 | 42.24 | 42.37 | 42.51 | 42.65 | 42.79 | 42.92 | 43.06 | 43.20 | 43.33 | 43.47 | 43.60 | 0.971 |
| 0.972 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 42.83 | 42.97 | 43.11 | 43.24 | 43.38 | 43.51 | 43.65 | 0.972 |
| 0.973 | 42.05 | 42.19 | 42.33 | 42.47 | 42.60 | 42.74 | 42.88 | 43.02 | 43.15 | 43.29 | 43.43 | 43.56 | 43.69 | 0.973 |
| 0.974 | 42.09 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 43.06 | 43.20 | 43.34 | 43.47 | 43.61 | 43.74 | 0.974 |
| 0.975 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 42.97 | 43.11 | 43.25 | 43.38 | 43.52 | 43.65 | 43.79 | 0.975 |
| 0.976 | 42.18 | 42.33 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 43.29 | 43.43 | 43.57 | 43.70 | 43.84 | 0.976 |
| 0.977 | 42.23 | 42.37 | 42.51 | 42.65 | 42.79 | 42.93 | 43.07 | 43.20 | 43.34 | 43.48 | 43.61 | 43.75 | 43.88 | 0.977 |
| 0.978 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 42.97 | 43.11 | 43.25 | 43.39 | 43.52 | 43.66 | 43.80 | 43.93 | 0.978 |
| 0.979 | 42.32 | 42.46 | 42.60 | 42.74 | 42.88 | 43.02 | 43.16 | 43.30 | 43.43 | 43.57 | 43.71 | 43.84 | 43.98 | 0.979 |

09-0013

Thermo Scientific
Flow Look-Up Table for PM10 VFC
High Volume Air Sampler

Serial # P9309 X

Calibrated with Rootsmeter serial # 0438320

Date Calibrated: 05/08/15

USE OF LOOK-UP-TABLE FOR DETERMINATION OF FLOW RATE PM10 VFC High Volume Air Sampler

1. Determine and record atmospheric properties.
2. Operate sampler and allow to warm up. Perform leak test and make sure all gaskets are in place and that there are no leaks.
3. Read the differential pressure across the filter (P_f), inches of H_2O that has to be converted to mm Hg. Reading is taken with a manometer where one side is open to atmosphere and the other is connected to pressure tap on side of filter holder. Filter should be in place for this measurement.
4. Calculate pressure ratio, P_o / P_a $P_o / P_a = 1 - (P_f / P_a)$
 P_f and P_a should be in mm Hg
5. Look up flow rate in look up table. The first 4 pages are in Celsius and actual m^3/min the last 4 pages are in Fahrenheit and actual cubic feet.

Example

(NOTE: Individual Look Up Tables will vary.)

1. Suppose the ambient conditions are:

Temperature: $T_a = 24^\circ C$

Barometric Pressure: $P_a = 762$ mm Hg (this must be station pressure which is not corrected to sea level)

2. Assume system is allowed to warm up for stable operation.
3. Measure filter pressure differential, P_f . This reading is the set-up reading plus pick-up reading divided by 2 for an average reading. This is taken with a differential manometer with one side of the manometer connected to the stagnation tap on the filter holder (or the Bulkhead Fitting) and the other side open to the atmosphere. Filter must be in place during this measurement.

Assume that:

Set-up Reading: $P_f = 18.60$ in H_2O

Pick-up Reading: $P_f = 19.80$ in H_2O

$P_f = (18.60 + 19.80)/2 = 19.20$ in H_2O .

4. Convert $P_f =$ to same units as barometric pressure.

$$P_f = 19.20 \text{ in H}_2\text{O} / 13.61 \times 25.4 = 35.83 \text{ mm Hg}$$

$$P_f = 35.83 \text{ mm Hg}$$

5. Calculate pressure ratio.

$$P_o/P_a = 1 - (P_f/P_a)$$

NOTE: P_f and P_a MUST HAVE CONSISTENT UNITS

$$P_o/P_a = 1 - (35.83 / 762) \quad P_o/P_a = .953$$

6. Look up Flow Rate from table.

Table 1 (pages 1 – 4) is set up with temperature in °C and the Flow Rate is read in units of m^3/min (actual, ACMM). In table 2 (pages 5 – 8) the temperature is in °F and Flow Rate is read in ft^3/min (actual, ACFM).

a) For the example we will use Table 1.

Locate the temperature and pressure ratio entries nearest the conditions of:

$$T_a = 24^\circ\text{C}$$

$$P_o/P_a = .953$$

Example: Look-Up Table for Actual Flow Rate in Units of m^3/min

| | Temperature °C | | | | |
|-------|----------------|--------------|-------|-------|-------|
| Po/Pa | 22 | 24 | 26 | 28 | 30 |
| 0.950 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 |
| 0.951 | 1.144 | 1.147 | 1.150 | 1.154 | 1.157 |
| 0.952 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 |
| 0.953 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 |
| 0.954 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 |
| 0.955 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 |

b) The reading of flow rate is: $Q_a = 1.150 \text{ m}^3/\text{min}$ (actual)

If your P_o/P_a number is not in look up table ie; $>.979$ then interpolate.

7. Determine flow rate in terms of standard air.

$$Q_{\text{std}} = 1.150 \text{ m}^3/\text{min} \left(\frac{762 \text{ mm Hg}}{760 \text{ mm Hg}} \right) \left(\frac{298\text{K}}{(273 + 24) \text{K}} \right)$$

$$Q_{\text{std}} = 1.157 \text{ std m}^3/\text{min}$$

It is always a good idea to contact the lab that you are dealing with to determine what information that they need including actual or standard air with respect to flow rate.

| | | TEMPERATURE °C Flow rate m3/min (actual) | | | | | | | | | | | | |
|-------|-------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Po/Pa | -32 | -30 | -28 | -26 | -24 | -22 | -20 | -18 | -16 | -14 | -12 | -10 | -8 | Po/Pa |
| 0.930 | 1.034 | 1.038 | 1.042 | 1.046 | 1.049 | 1.053 | 1.057 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.079 | 0.930 |
| 0.931 | 1.035 | 1.039 | 1.043 | 1.047 | 1.050 | 1.054 | 1.058 | 1.062 | 1.065 | 1.069 | 1.073 | 1.076 | 1.080 | 0.931 |
| 0.932 | 1.037 | 1.040 | 1.044 | 1.048 | 1.052 | 1.055 | 1.059 | 1.063 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 0.932 |
| 0.933 | 1.038 | 1.042 | 1.045 | 1.049 | 1.053 | 1.057 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.079 | 1.082 | 0.933 |
| 0.934 | 1.039 | 1.043 | 1.047 | 1.050 | 1.054 | 1.058 | 1.061 | 1.065 | 1.069 | 1.073 | 1.076 | 1.080 | 1.083 | 0.934 |
| 0.935 | 1.040 | 1.044 | 1.048 | 1.051 | 1.055 | 1.059 | 1.063 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 1.085 | 0.935 |
| 0.936 | 1.041 | 1.045 | 1.049 | 1.053 | 1.056 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.079 | 1.082 | 1.086 | 0.936 |
| 0.937 | 1.042 | 1.046 | 1.050 | 1.054 | 1.058 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.084 | 1.087 | 0.937 |
| 0.938 | 1.044 | 1.047 | 1.051 | 1.055 | 1.059 | 1.063 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 1.085 | 1.088 | 0.938 |
| 0.939 | 1.045 | 1.049 | 1.052 | 1.056 | 1.060 | 1.064 | 1.067 | 1.071 | 1.075 | 1.079 | 1.082 | 1.086 | 1.090 | 0.939 |
| 0.940 | 1.046 | 1.050 | 1.054 | 1.057 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 1.091 | 0.940 |
| 0.941 | 1.047 | 1.051 | 1.055 | 1.059 | 1.062 | 1.066 | 1.070 | 1.074 | 1.077 | 1.081 | 1.085 | 1.088 | 1.092 | 0.941 |
| 0.942 | 1.048 | 1.052 | 1.056 | 1.060 | 1.064 | 1.067 | 1.071 | 1.075 | 1.079 | 1.082 | 1.086 | 1.090 | 1.093 | 0.942 |
| 0.943 | 1.049 | 1.053 | 1.057 | 1.061 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 1.091 | 1.094 | 0.943 |
| 0.944 | 1.051 | 1.054 | 1.058 | 1.062 | 1.066 | 1.070 | 1.073 | 1.077 | 1.081 | 1.085 | 1.088 | 1.092 | 1.096 | 0.944 |
| 0.945 | 1.052 | 1.056 | 1.059 | 1.063 | 1.067 | 1.071 | 1.075 | 1.078 | 1.082 | 1.086 | 1.090 | 1.093 | 1.097 | 0.945 |
| 0.946 | 1.053 | 1.057 | 1.061 | 1.064 | 1.068 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 0.946 |
| 0.947 | 1.054 | 1.058 | 1.062 | 1.066 | 1.069 | 1.073 | 1.077 | 1.081 | 1.085 | 1.088 | 1.092 | 1.096 | 1.099 | 0.947 |
| 0.948 | 1.055 | 1.059 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.086 | 1.089 | 1.093 | 1.097 | 1.101 | 0.948 |
| 0.949 | 1.057 | 1.060 | 1.064 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 1.102 | 0.949 |
| 0.950 | 1.058 | 1.062 | 1.065 | 1.069 | 1.073 | 1.077 | 1.081 | 1.084 | 1.088 | 1.092 | 1.096 | 1.099 | 1.103 | 0.950 |
| 0.951 | 1.059 | 1.063 | 1.067 | 1.070 | 1.074 | 1.078 | 1.082 | 1.086 | 1.089 | 1.093 | 1.097 | 1.101 | 1.104 | 0.951 |
| 0.952 | 1.060 | 1.064 | 1.068 | 1.072 | 1.075 | 1.079 | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 1.102 | 1.106 | 0.952 |
| 0.953 | 1.061 | 1.065 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.099 | 1.103 | 1.107 | 0.953 |
| 0.954 | 1.062 | 1.066 | 1.070 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.104 | 1.108 | 0.954 |
| 0.955 | 1.064 | 1.067 | 1.071 | 1.075 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 1.102 | 1.105 | 1.109 | 0.955 |
| 0.956 | 1.065 | 1.069 | 1.072 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.095 | 1.099 | 1.103 | 1.107 | 1.110 | 0.956 |
| 0.957 | 1.066 | 1.070 | 1.074 | 1.078 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 1.108 | 1.112 | 0.957 |
| 0.958 | 1.067 | 1.071 | 1.075 | 1.079 | 1.083 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.105 | 1.109 | 1.113 | 0.958 |
| 0.959 | 1.068 | 1.072 | 1.076 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.110 | 1.114 | 0.959 |
| 0.960 | 1.069 | 1.073 | 1.077 | 1.081 | 1.085 | 1.089 | 1.093 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.115 | 0.960 |
| 0.961 | 1.071 | 1.074 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 0.961 |
| 0.962 | 1.072 | 1.076 | 1.080 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.106 | 1.110 | 1.114 | 1.118 | 0.962 |
| 0.963 | 1.073 | 1.077 | 1.081 | 1.085 | 1.089 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 1.119 | 0.963 |
| 0.964 | 1.074 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.116 | 1.120 | 0.964 |
| 0.965 | 1.075 | 1.079 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.121 | 0.965 |
| 0.966 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 0.966 |
| 0.967 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.124 | 0.967 |
| 0.968 | 1.079 | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 0.968 |
| 0.969 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 1.126 | 0.969 |
| 0.970 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.108 | 1.112 | 1.116 | 1.120 | 1.124 | 1.128 | 0.970 |
| 0.971 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 1.125 | 1.129 | 0.971 |
| 0.972 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 1.130 | 0.972 |
| 0.973 | 1.085 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 0.973 |
| 0.974 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 1.129 | 1.132 | 0.974 |
| 0.975 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.114 | 1.118 | 1.122 | 1.126 | 1.130 | 1.134 | 0.975 |
| 0.976 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.131 | 1.135 | 0.976 |
| 0.977 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 0.977 |
| 0.978 | 1.091 | 1.095 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.122 | 1.126 | 1.130 | 1.134 | 1.137 | 0.978 |
| 0.979 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 1.119 | 1.123 | 1.127 | 1.131 | 1.135 | 1.139 | 0.979 |

| | | TEMPERATURE °C Flow rate m3/min (actual) | | | | | | | | | | | | | |
|-------|--|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Po/Pa | | -6 | -4 | -2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | Po/Pa |
| 0.930 | | 1.082 | 1.086 | 1.089 | 1.093 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.114 | 1.118 | 1.121 | 1.124 | 0.930 |
| 0.931 | | 1.083 | 1.087 | 1.091 | 1.094 | 1.098 | 1.101 | 1.105 | 1.108 | 1.112 | 1.115 | 1.119 | 1.122 | 1.126 | 0.931 |
| 0.932 | | 1.085 | 1.088 | 1.092 | 1.095 | 1.099 | 1.103 | 1.106 | 1.110 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 0.932 |
| 0.933 | | 1.086 | 1.089 | 1.093 | 1.097 | 1.100 | 1.104 | 1.107 | 1.111 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 0.933 |
| 0.934 | | 1.087 | 1.091 | 1.094 | 1.098 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.119 | 1.123 | 1.126 | 1.130 | 0.934 |
| 0.935 | | 1.088 | 1.092 | 1.096 | 1.099 | 1.103 | 1.106 | 1.110 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 0.935 |
| 0.936 | | 1.090 | 1.093 | 1.097 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 1.118 | 1.122 | 1.125 | 1.129 | 1.132 | 0.936 |
| 0.937 | | 1.091 | 1.094 | 1.098 | 1.102 | 1.105 | 1.109 | 1.112 | 1.116 | 1.119 | 1.123 | 1.126 | 1.130 | 1.133 | 0.937 |
| 0.938 | | 1.092 | 1.096 | 1.099 | 1.103 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 0.938 |
| 0.939 | | 1.093 | 1.097 | 1.100 | 1.104 | 1.108 | 1.111 | 1.115 | 1.118 | 1.122 | 1.125 | 1.129 | 1.132 | 1.136 | 0.939 |
| 0.940 | | 1.094 | 1.098 | 1.102 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.130 | 1.134 | 1.137 | 0.940 |
| 0.941 | | 1.096 | 1.099 | 1.103 | 1.107 | 1.110 | 1.114 | 1.117 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 1.138 | 0.941 |
| 0.942 | | 1.097 | 1.101 | 1.104 | 1.108 | 1.111 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 1.133 | 1.136 | 1.140 | 0.942 |
| 0.943 | | 1.098 | 1.102 | 1.105 | 1.109 | 1.113 | 1.116 | 1.120 | 1.123 | 1.127 | 1.130 | 1.134 | 1.138 | 1.141 | 0.943 |
| 0.944 | | 1.099 | 1.103 | 1.107 | 1.110 | 1.114 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 0.944 |
| 0.945 | | 1.101 | 1.104 | 1.108 | 1.112 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 1.133 | 1.137 | 1.140 | 1.144 | 0.945 |
| 0.946 | | 1.102 | 1.105 | 1.109 | 1.113 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 0.946 |
| 0.947 | | 1.103 | 1.107 | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 0.947 |
| 0.948 | | 1.104 | 1.108 | 1.112 | 1.115 | 1.119 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 0.948 |
| 0.949 | | 1.106 | 1.109 | 1.113 | 1.116 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 1.138 | 1.142 | 1.145 | 1.149 | 0.949 |
| 0.950 | | 1.107 | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 0.950 |
| 0.951 | | 1.108 | 1.112 | 1.115 | 1.119 | 1.123 | 1.126 | 1.130 | 1.133 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 0.951 |
| 0.952 | | 1.109 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 0.952 |
| 0.953 | | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.154 | 0.953 |
| 0.954 | | 1.112 | 1.115 | 1.119 | 1.123 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 0.954 |
| 0.955 | | 1.113 | 1.117 | 1.120 | 1.124 | 1.128 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 0.955 |
| 0.956 | | 1.114 | 1.118 | 1.121 | 1.125 | 1.129 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.154 | 1.158 | 0.956 |
| 0.957 | | 1.115 | 1.119 | 1.123 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 0.957 |
| 0.958 | | 1.117 | 1.120 | 1.124 | 1.128 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.157 | 1.160 | 0.958 |
| 0.959 | | 1.118 | 1.121 | 1.125 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 0.959 |
| 0.960 | | 1.119 | 1.123 | 1.126 | 1.130 | 1.134 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 0.960 |
| 0.961 | | 1.120 | 1.124 | 1.128 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 0.961 |
| 0.962 | | 1.121 | 1.125 | 1.129 | 1.133 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.165 | 0.962 |
| 0.963 | | 1.123 | 1.126 | 1.130 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.167 | 0.963 |
| 0.964 | | 1.124 | 1.128 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 0.964 |
| 0.965 | | 1.125 | 1.129 | 1.133 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 0.965 |
| 0.966 | | 1.126 | 1.130 | 1.134 | 1.138 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 0.966 |
| 0.967 | | 1.128 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 0.967 |
| 0.968 | | 1.129 | 1.133 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 0.968 |
| 0.969 | | 1.130 | 1.134 | 1.138 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 0.969 |
| 0.970 | | 1.131 | 1.135 | 1.139 | 1.143 | 1.146 | 1.150 | 1.154 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 0.970 |
| 0.971 | | 1.133 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.177 | 0.971 |
| 0.972 | | 1.134 | 1.138 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 0.972 |
| 0.973 | | 1.135 | 1.139 | 1.142 | 1.146 | 1.150 | 1.154 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 0.973 |
| 0.974 | | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.159 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 0.974 |
| 0.975 | | 1.137 | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.164 | 1.167 | 1.171 | 1.175 | 1.178 | 1.182 | 0.975 |
| 0.976 | | 1.139 | 1.142 | 1.146 | 1.150 | 1.154 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 0.976 |
| 0.977 | | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 1.159 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.184 | 0.977 |
| 0.978 | | 1.141 | 1.145 | 1.149 | 1.152 | 1.156 | 1.160 | 1.164 | 1.167 | 1.171 | 1.175 | 1.178 | 1.182 | 1.186 | 0.978 |
| 0.979 | | 1.142 | 1.146 | 1.150 | 1.154 | 1.157 | 1.161 | 1.165 | 1.169 | 1.172 | 1.176 | 1.180 | 1.183 | 1.187 | 0.979 |

| Po/Pa | TEMPERATURE °C | | | | | | | | | | | | | Po/Pa |
|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | |
| 0.930 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.148 | 1.152 | 1.155 | 1.158 | 1.162 | 0.930 |
| 0.931 | 1.122 | 1.126 | 1.129 | 1.133 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 | 1.163 | 0.931 |
| 0.932 | 1.124 | 1.127 | 1.130 | 1.134 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.154 | 1.158 | 1.161 | 1.164 | 0.932 |
| 0.933 | 1.125 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 | 1.166 | 0.933 |
| 0.934 | 1.126 | 1.130 | 1.133 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 0.934 |
| 0.935 | 1.127 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.168 | 0.935 |
| 0.936 | 1.129 | 1.132 | 1.136 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 0.936 |
| 0.937 | 1.130 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 1.151 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 0.937 |
| 0.938 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 0.938 |
| 0.939 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 0.939 |
| 0.940 | 1.134 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 0.940 |
| 0.941 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 0.941 |
| 0.942 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 0.942 |
| 0.943 | 1.138 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 0.943 |
| 0.944 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 0.944 |
| 0.945 | 1.140 | 1.144 | 1.147 | 1.151 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 0.945 |
| 0.946 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 1.183 | 0.946 |
| 0.947 | 1.143 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 0.947 |
| 0.948 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.185 | 0.948 |
| 0.949 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 0.949 |
| 0.950 | 1.146 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 0.950 |
| 0.951 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 0.951 |
| 0.952 | 1.149 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 0.952 |
| 0.953 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 0.953 |
| 0.954 | 1.151 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 1.190 | 1.193 | 0.954 |
| 0.955 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 0.955 |
| 0.956 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 1.196 | 0.956 |
| 0.957 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 0.957 |
| 0.958 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 0.958 |
| 0.959 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 0.959 |
| 0.960 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 0.960 |
| 0.961 | 1.160 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.202 | 0.961 |
| 0.962 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 0.962 |
| 0.963 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 0.963 |
| 0.964 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.199 | 1.203 | 1.206 | 0.964 |
| 0.965 | 1.165 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 0.965 |
| 0.966 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 0.966 |
| 0.967 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 0.967 |
| 0.968 | 1.169 | 1.173 | 1.176 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 0.968 |
| 0.969 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 0.969 |
| 0.970 | 1.172 | 1.175 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 0.970 |
| 0.971 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 0.971 |
| 0.972 | 1.174 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 0.972 |
| 0.973 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 0.973 |
| 0.974 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 0.974 |
| 0.975 | 1.178 | 1.182 | 1.185 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 0.975 |
| 0.976 | 1.179 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 0.976 |
| 0.977 | 1.181 | 1.184 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.217 | 1.220 | 1.224 | 0.977 |
| 0.978 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 0.978 |
| 0.979 | 1.183 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 0.979 |

| Po/Pa | TEMPERATURE °C | | | | | | | | | | | | | Po/Pa |
|-------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | |
| 0.930 | 1.138 | 1.142 | 1.145 | 1.148 | 1.152 | 1.155 | 1.158 | 1.162 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 0.930 |
| 0.931 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 1.176 | 1.179 | 0.931 |
| 0.932 | 1.141 | 1.144 | 1.148 | 1.151 | 1.154 | 1.158 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 1.178 | 1.181 | 0.932 |
| 0.933 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 | 1.166 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 0.933 |
| 0.934 | 1.143 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.183 | 0.934 |
| 0.935 | 1.145 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 1.182 | 1.185 | 0.935 |
| 0.936 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 0.936 |
| 0.937 | 1.147 | 1.151 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 1.178 | 1.181 | 1.184 | 1.187 | 0.937 |
| 0.938 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 0.938 |
| 0.939 | 1.150 | 1.153 | 1.157 | 1.160 | 1.163 | 1.167 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 0.939 |
| 0.940 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.188 | 1.191 | 0.940 |
| 0.941 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 0.941 |
| 0.942 | 1.154 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.194 | 0.942 |
| 0.943 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 1.182 | 1.185 | 1.189 | 1.192 | 1.195 | 0.943 |
| 0.944 | 1.156 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 1.187 | 1.190 | 1.193 | 1.197 | 0.944 |
| 0.945 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 1.195 | 1.198 | 0.945 |
| 0.946 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.179 | 1.183 | 1.186 | 1.189 | 1.193 | 1.196 | 1.199 | 0.946 |
| 0.947 | 1.160 | 1.164 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.187 | 1.191 | 1.194 | 1.197 | 1.201 | 0.947 |
| 0.948 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.185 | 1.189 | 1.192 | 1.195 | 1.199 | 1.202 | 0.948 |
| 0.949 | 1.163 | 1.166 | 1.170 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.193 | 1.197 | 1.200 | 1.203 | 0.949 |
| 0.950 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 1.195 | 1.198 | 1.201 | 1.205 | 0.950 |
| 0.951 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.199 | 1.203 | 1.206 | 0.951 |
| 0.952 | 1.167 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 0.952 |
| 0.953 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.195 | 1.199 | 1.202 | 1.205 | 1.209 | 0.953 |
| 0.954 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.203 | 1.207 | 1.210 | 0.954 |
| 0.955 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 0.955 |
| 0.956 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.209 | 1.213 | 0.956 |
| 0.957 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.207 | 1.211 | 1.214 | 0.957 |
| 0.958 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 0.958 |
| 0.959 | 1.176 | 1.179 | 1.183 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.213 | 1.217 | 0.959 |
| 0.960 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.211 | 1.215 | 1.218 | 0.960 |
| 0.961 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 0.961 |
| 0.962 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.217 | 1.221 | 0.962 |
| 0.963 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.215 | 1.219 | 1.222 | 0.963 |
| 0.964 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 0.964 |
| 0.965 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.221 | 1.225 | 0.965 |
| 0.966 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.219 | 1.223 | 1.226 | 0.966 |
| 0.967 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 0.967 |
| 0.968 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.225 | 1.229 | 0.968 |
| 0.969 | 1.188 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 0.969 |
| 0.970 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 1.232 | 0.970 |
| 0.971 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.229 | 1.233 | 0.971 |
| 0.972 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 1.231 | 1.234 | 0.972 |
| 0.973 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.229 | 1.232 | 1.236 | 0.973 |
| 0.974 | 1.195 | 1.198 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 1.233 | 1.237 | 0.974 |
| 0.975 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 1.231 | 1.235 | 1.238 | 0.975 |
| 0.976 | 1.197 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 1.229 | 1.233 | 1.236 | 1.240 | 0.976 |
| 0.977 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 1.231 | 1.234 | 1.237 | 1.241 | 0.977 |
| 0.978 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 1.232 | 1.235 | 1.239 | 1.242 | 0.978 |
| 0.979 | 1.201 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 1.233 | 1.237 | 1.240 | 1.244 | 0.979 |

| Po/Pa | TEMPERATURE °F Flow rate ft3/min (actual) | | | | | | | | | | | | Po/Pa | |
|-------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | -12 | -8 | -4 | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | | 36 |
| 0.930 | 37.03 | 37.17 | 37.32 | 37.46 | 37.61 | 37.75 | 37.89 | 38.03 | 38.18 | 38.32 | 38.46 | 38.60 | 38.74 | 0.930 |
| 0.931 | 37.07 | 37.21 | 37.36 | 37.50 | 37.65 | 37.79 | 37.93 | 38.08 | 38.22 | 38.36 | 38.50 | 38.64 | 38.78 | 0.931 |
| 0.932 | 37.11 | 37.26 | 37.40 | 37.55 | 37.69 | 37.83 | 37.98 | 38.12 | 38.26 | 38.40 | 38.54 | 38.68 | 38.82 | 0.932 |
| 0.933 | 37.15 | 37.30 | 37.44 | 37.59 | 37.73 | 37.88 | 38.02 | 38.16 | 38.31 | 38.45 | 38.59 | 38.73 | 38.87 | 0.933 |
| 0.934 | 37.19 | 37.34 | 37.49 | 37.63 | 37.78 | 37.92 | 38.06 | 38.21 | 38.35 | 38.49 | 38.63 | 38.77 | 38.91 | 0.934 |
| 0.935 | 37.24 | 37.38 | 37.53 | 37.67 | 37.82 | 37.96 | 38.11 | 38.25 | 38.39 | 38.53 | 38.68 | 38.82 | 38.96 | 0.935 |
| 0.936 | 37.28 | 37.42 | 37.57 | 37.72 | 37.86 | 38.01 | 38.15 | 38.29 | 38.44 | 38.58 | 38.72 | 38.86 | 39.00 | 0.936 |
| 0.937 | 37.32 | 37.47 | 37.61 | 37.76 | 37.90 | 38.05 | 38.19 | 38.34 | 38.48 | 38.62 | 38.76 | 38.90 | 39.04 | 0.937 |
| 0.938 | 37.36 | 37.51 | 37.66 | 37.80 | 37.95 | 38.09 | 38.24 | 38.38 | 38.52 | 38.66 | 38.81 | 38.95 | 39.09 | 0.938 |
| 0.939 | 37.40 | 37.55 | 37.70 | 37.84 | 37.99 | 38.13 | 38.28 | 38.42 | 38.56 | 38.71 | 38.85 | 38.99 | 39.13 | 0.939 |
| 0.940 | 37.44 | 37.59 | 37.74 | 37.89 | 38.03 | 38.18 | 38.32 | 38.46 | 38.61 | 38.75 | 38.89 | 39.03 | 39.18 | 0.940 |
| 0.941 | 37.49 | 37.63 | 37.78 | 37.93 | 38.07 | 38.22 | 38.36 | 38.51 | 38.65 | 38.79 | 38.94 | 39.08 | 39.22 | 0.941 |
| 0.942 | 37.53 | 37.68 | 37.82 | 37.97 | 38.12 | 38.26 | 38.41 | 38.55 | 38.69 | 38.84 | 38.98 | 39.12 | 39.26 | 0.942 |
| 0.943 | 37.57 | 37.72 | 37.87 | 38.01 | 38.16 | 38.31 | 38.45 | 38.59 | 38.74 | 38.88 | 39.02 | 39.17 | 39.31 | 0.943 |
| 0.944 | 37.61 | 37.76 | 37.91 | 38.06 | 38.20 | 38.35 | 38.49 | 38.64 | 38.78 | 38.92 | 39.07 | 39.21 | 39.35 | 0.944 |
| 0.945 | 37.65 | 37.80 | 37.95 | 38.10 | 38.24 | 38.39 | 38.54 | 38.68 | 38.82 | 38.97 | 39.11 | 39.25 | 39.39 | 0.945 |
| 0.946 | 37.70 | 37.85 | 37.99 | 38.14 | 38.29 | 38.43 | 38.58 | 38.72 | 38.87 | 39.01 | 39.15 | 39.30 | 39.44 | 0.946 |
| 0.947 | 37.74 | 37.89 | 38.04 | 38.18 | 38.33 | 38.48 | 38.62 | 38.77 | 38.91 | 39.05 | 39.20 | 39.34 | 39.48 | 0.947 |
| 0.948 | 37.78 | 37.93 | 38.08 | 38.23 | 38.37 | 38.52 | 38.66 | 38.81 | 38.95 | 39.10 | 39.24 | 39.38 | 39.53 | 0.948 |
| 0.949 | 37.82 | 37.97 | 38.12 | 38.27 | 38.42 | 38.56 | 38.71 | 38.85 | 39.00 | 39.14 | 39.29 | 39.43 | 39.57 | 0.949 |
| 0.950 | 37.86 | 38.01 | 38.16 | 38.31 | 38.46 | 38.60 | 38.75 | 38.90 | 39.04 | 39.19 | 39.33 | 39.47 | 39.61 | 0.950 |
| 0.951 | 37.91 | 38.06 | 38.20 | 38.35 | 38.50 | 38.65 | 38.79 | 38.94 | 39.08 | 39.23 | 39.37 | 39.52 | 39.66 | 0.951 |
| 0.952 | 37.95 | 38.10 | 38.25 | 38.40 | 38.54 | 38.69 | 38.84 | 38.98 | 39.13 | 39.27 | 39.42 | 39.56 | 39.70 | 0.952 |
| 0.953 | 37.99 | 38.14 | 38.29 | 38.44 | 38.59 | 38.73 | 38.88 | 39.03 | 39.17 | 39.32 | 39.46 | 39.60 | 39.75 | 0.953 |
| 0.954 | 38.03 | 38.18 | 38.33 | 38.48 | 38.63 | 38.78 | 38.92 | 39.07 | 39.21 | 39.36 | 39.50 | 39.65 | 39.79 | 0.954 |
| 0.955 | 38.07 | 38.22 | 38.37 | 38.52 | 38.67 | 38.82 | 38.97 | 39.11 | 39.26 | 39.40 | 39.55 | 39.69 | 39.83 | 0.955 |
| 0.956 | 38.12 | 38.27 | 38.42 | 38.57 | 38.71 | 38.86 | 39.01 | 39.15 | 39.30 | 39.45 | 39.59 | 39.73 | 39.88 | 0.956 |
| 0.957 | 38.16 | 38.31 | 38.46 | 38.61 | 38.76 | 38.90 | 39.05 | 39.20 | 39.34 | 39.49 | 39.63 | 39.78 | 39.92 | 0.957 |
| 0.958 | 38.20 | 38.35 | 38.50 | 38.65 | 38.80 | 38.95 | 39.09 | 39.24 | 39.39 | 39.53 | 39.68 | 39.82 | 39.97 | 0.958 |
| 0.959 | 38.24 | 38.39 | 38.54 | 38.69 | 38.84 | 38.99 | 39.14 | 39.28 | 39.43 | 39.58 | 39.72 | 39.87 | 40.01 | 0.959 |
| 0.960 | 38.28 | 38.44 | 38.59 | 38.74 | 38.88 | 39.03 | 39.18 | 39.33 | 39.47 | 39.62 | 39.76 | 39.91 | 40.05 | 0.960 |
| 0.961 | 38.33 | 38.48 | 38.63 | 38.78 | 38.93 | 39.08 | 39.22 | 39.37 | 39.52 | 39.66 | 39.81 | 39.95 | 40.10 | 0.961 |
| 0.962 | 38.37 | 38.52 | 38.67 | 38.82 | 38.97 | 39.12 | 39.27 | 39.41 | 39.56 | 39.71 | 39.85 | 40.00 | 40.14 | 0.962 |
| 0.963 | 38.41 | 38.56 | 38.71 | 38.86 | 39.01 | 39.16 | 39.31 | 39.46 | 39.60 | 39.75 | 39.90 | 40.04 | 40.19 | 0.963 |
| 0.964 | 38.45 | 38.60 | 38.75 | 38.91 | 39.05 | 39.20 | 39.35 | 39.50 | 39.65 | 39.79 | 39.94 | 40.08 | 40.23 | 0.964 |
| 0.965 | 38.49 | 38.65 | 38.80 | 38.95 | 39.10 | 39.25 | 39.40 | 39.54 | 39.69 | 39.84 | 39.98 | 40.13 | 40.27 | 0.965 |
| 0.966 | 38.54 | 38.69 | 38.84 | 38.99 | 39.14 | 39.29 | 39.44 | 39.59 | 39.73 | 39.88 | 40.03 | 40.17 | 40.32 | 0.966 |
| 0.967 | 38.58 | 38.73 | 38.88 | 39.03 | 39.18 | 39.33 | 39.48 | 39.63 | 39.78 | 39.92 | 40.07 | 40.22 | 40.36 | 0.967 |
| 0.968 | 38.62 | 38.77 | 38.92 | 39.08 | 39.23 | 39.38 | 39.52 | 39.67 | 39.82 | 39.97 | 40.11 | 40.26 | 40.40 | 0.968 |
| 0.969 | 38.66 | 38.81 | 38.97 | 39.12 | 39.27 | 39.42 | 39.57 | 39.72 | 39.86 | 40.01 | 40.16 | 40.30 | 40.45 | 0.969 |
| 0.970 | 38.70 | 38.86 | 39.01 | 39.16 | 39.31 | 39.46 | 39.61 | 39.76 | 39.91 | 40.05 | 40.20 | 40.35 | 40.49 | 0.970 |
| 0.971 | 38.75 | 38.90 | 39.05 | 39.20 | 39.35 | 39.50 | 39.65 | 39.80 | 39.95 | 40.10 | 40.24 | 40.39 | 40.54 | 0.971 |
| 0.972 | 38.79 | 38.94 | 39.09 | 39.25 | 39.40 | 39.55 | 39.70 | 39.85 | 39.99 | 40.14 | 40.29 | 40.43 | 40.58 | 0.972 |
| 0.973 | 38.83 | 38.98 | 39.14 | 39.29 | 39.44 | 39.59 | 39.74 | 39.89 | 40.04 | 40.18 | 40.33 | 40.48 | 40.62 | 0.973 |
| 0.974 | 38.87 | 39.03 | 39.18 | 39.33 | 39.48 | 39.63 | 39.78 | 39.93 | 40.08 | 40.23 | 40.38 | 40.52 | 40.67 | 0.974 |
| 0.975 | 38.91 | 39.07 | 39.22 | 39.37 | 39.52 | 39.68 | 39.83 | 39.97 | 40.12 | 40.27 | 40.42 | 40.57 | 40.71 | 0.975 |
| 0.976 | 38.96 | 39.11 | 39.26 | 39.42 | 39.57 | 39.72 | 39.87 | 40.02 | 40.17 | 40.32 | 40.46 | 40.61 | 40.76 | 0.976 |
| 0.977 | 39.00 | 39.15 | 39.31 | 39.46 | 39.61 | 39.76 | 39.91 | 40.06 | 40.21 | 40.36 | 40.51 | 40.65 | 40.80 | 0.977 |
| 0.978 | 39.04 | 39.19 | 39.35 | 39.50 | 39.65 | 39.80 | 39.95 | 40.10 | 40.25 | 40.40 | 40.55 | 40.70 | 40.84 | 0.978 |
| 0.979 | 39.08 | 39.24 | 39.39 | 39.54 | 39.70 | 39.85 | 40.00 | 40.15 | 40.30 | 40.45 | 40.59 | 40.74 | 40.89 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 18 | 22 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 58 | 62 | 66 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 38.11 | 38.25 | 38.39 | 38.53 | 38.67 | 38.81 | 38.94 | 39.08 | 39.22 | 39.36 | 39.49 | 39.63 | 39.76 | 0.930 |
| 0.931 | 38.15 | 38.29 | 38.43 | 38.57 | 38.71 | 38.85 | 38.99 | 39.13 | 39.26 | 39.40 | 39.54 | 39.67 | 39.81 | 0.931 |
| 0.932 | 38.19 | 38.33 | 38.47 | 38.61 | 38.75 | 38.89 | 39.03 | 39.17 | 39.31 | 39.45 | 39.58 | 39.72 | 39.85 | 0.932 |
| 0.933 | 38.23 | 38.38 | 38.52 | 38.66 | 38.80 | 38.94 | 39.08 | 39.21 | 39.35 | 39.49 | 39.63 | 39.76 | 39.90 | 0.933 |
| 0.934 | 38.28 | 38.42 | 38.56 | 38.70 | 38.84 | 38.98 | 39.12 | 39.26 | 39.40 | 39.53 | 39.67 | 39.81 | 39.94 | 0.934 |
| 0.935 | 38.32 | 38.46 | 38.60 | 38.75 | 38.89 | 39.03 | 39.16 | 39.30 | 39.44 | 39.58 | 39.72 | 39.85 | 39.99 | 0.935 |
| 0.936 | 38.36 | 38.51 | 38.65 | 38.79 | 38.93 | 39.07 | 39.21 | 39.35 | 39.49 | 39.62 | 39.76 | 39.90 | 40.03 | 0.936 |
| 0.937 | 38.41 | 38.55 | 38.69 | 38.83 | 38.97 | 39.11 | 39.25 | 39.39 | 39.53 | 39.67 | 39.81 | 39.94 | 40.08 | 0.937 |
| 0.938 | 38.45 | 38.59 | 38.73 | 38.88 | 39.02 | 39.16 | 39.30 | 39.44 | 39.57 | 39.71 | 39.85 | 39.99 | 40.12 | 0.938 |
| 0.939 | 38.49 | 38.64 | 38.78 | 38.92 | 39.06 | 39.20 | 39.34 | 39.48 | 39.62 | 39.76 | 39.90 | 40.03 | 40.17 | 0.939 |
| 0.940 | 38.54 | 38.68 | 38.82 | 38.96 | 39.10 | 39.25 | 39.39 | 39.52 | 39.66 | 39.80 | 39.94 | 40.08 | 40.21 | 0.940 |
| 0.941 | 38.58 | 38.72 | 38.87 | 39.01 | 39.15 | 39.29 | 39.43 | 39.57 | 39.71 | 39.85 | 39.98 | 40.12 | 40.26 | 0.941 |
| 0.942 | 38.62 | 38.77 | 38.91 | 39.05 | 39.19 | 39.33 | 39.47 | 39.61 | 39.75 | 39.89 | 40.03 | 40.17 | 40.30 | 0.942 |
| 0.943 | 38.67 | 38.81 | 38.95 | 39.09 | 39.24 | 39.38 | 39.52 | 39.66 | 39.80 | 39.94 | 40.07 | 40.21 | 40.35 | 0.943 |
| 0.944 | 38.71 | 38.85 | 39.00 | 39.14 | 39.28 | 39.42 | 39.56 | 39.70 | 39.84 | 39.98 | 40.12 | 40.26 | 40.39 | 0.944 |
| 0.945 | 38.75 | 38.90 | 39.04 | 39.18 | 39.32 | 39.47 | 39.61 | 39.75 | 39.89 | 40.03 | 40.16 | 40.30 | 40.44 | 0.945 |
| 0.946 | 38.80 | 38.94 | 39.08 | 39.23 | 39.37 | 39.51 | 39.65 | 39.79 | 39.93 | 40.07 | 40.21 | 40.35 | 40.48 | 0.946 |
| 0.947 | 38.84 | 38.98 | 39.13 | 39.27 | 39.41 | 39.55 | 39.69 | 39.83 | 39.97 | 40.11 | 40.25 | 40.39 | 40.53 | 0.947 |
| 0.948 | 38.88 | 39.03 | 39.17 | 39.31 | 39.46 | 39.60 | 39.74 | 39.88 | 40.02 | 40.16 | 40.30 | 40.44 | 40.57 | 0.948 |
| 0.949 | 38.93 | 39.07 | 39.21 | 39.36 | 39.50 | 39.64 | 39.78 | 39.92 | 40.06 | 40.20 | 40.34 | 40.48 | 40.62 | 0.949 |
| 0.950 | 38.97 | 39.11 | 39.26 | 39.40 | 39.54 | 39.69 | 39.83 | 39.97 | 40.11 | 40.25 | 40.39 | 40.53 | 40.66 | 0.950 |
| 0.951 | 39.01 | 39.16 | 39.30 | 39.44 | 39.59 | 39.73 | 39.87 | 40.01 | 40.15 | 40.29 | 40.43 | 40.57 | 40.71 | 0.951 |
| 0.952 | 39.05 | 39.20 | 39.34 | 39.49 | 39.63 | 39.77 | 39.92 | 40.06 | 40.20 | 40.34 | 40.48 | 40.62 | 40.75 | 0.952 |
| 0.953 | 39.10 | 39.24 | 39.39 | 39.53 | 39.67 | 39.82 | 39.96 | 40.10 | 40.24 | 40.38 | 40.52 | 40.66 | 40.80 | 0.953 |
| 0.954 | 39.14 | 39.29 | 39.43 | 39.57 | 39.72 | 39.86 | 40.00 | 40.14 | 40.29 | 40.43 | 40.57 | 40.71 | 40.84 | 0.954 |
| 0.955 | 39.18 | 39.33 | 39.47 | 39.62 | 39.76 | 39.91 | 40.05 | 40.19 | 40.33 | 40.47 | 40.61 | 40.75 | 40.89 | 0.955 |
| 0.956 | 39.23 | 39.37 | 39.52 | 39.66 | 39.81 | 39.95 | 40.09 | 40.23 | 40.38 | 40.52 | 40.66 | 40.80 | 40.94 | 0.956 |
| 0.957 | 39.27 | 39.42 | 39.56 | 39.71 | 39.85 | 39.99 | 40.14 | 40.28 | 40.42 | 40.56 | 40.70 | 40.84 | 40.98 | 0.957 |
| 0.958 | 39.31 | 39.46 | 39.61 | 39.75 | 39.89 | 40.04 | 40.18 | 40.32 | 40.46 | 40.61 | 40.75 | 40.89 | 41.03 | 0.958 |
| 0.959 | 39.36 | 39.50 | 39.65 | 39.79 | 39.94 | 40.08 | 40.22 | 40.37 | 40.51 | 40.65 | 40.79 | 40.93 | 41.07 | 0.959 |
| 0.960 | 39.40 | 39.55 | 39.69 | 39.84 | 39.98 | 40.13 | 40.27 | 40.41 | 40.55 | 40.69 | 40.84 | 40.98 | 41.12 | 0.960 |
| 0.961 | 39.44 | 39.59 | 39.74 | 39.88 | 40.03 | 40.17 | 40.31 | 40.46 | 40.60 | 40.74 | 40.88 | 41.02 | 41.16 | 0.961 |
| 0.962 | 39.49 | 39.63 | 39.78 | 39.92 | 40.07 | 40.21 | 40.36 | 40.50 | 40.64 | 40.78 | 40.92 | 41.07 | 41.21 | 0.962 |
| 0.963 | 39.53 | 39.68 | 39.82 | 39.97 | 40.11 | 40.26 | 40.40 | 40.54 | 40.69 | 40.83 | 40.97 | 41.11 | 41.25 | 0.963 |
| 0.964 | 39.57 | 39.72 | 39.87 | 40.01 | 40.16 | 40.30 | 40.45 | 40.59 | 40.73 | 40.87 | 41.01 | 41.16 | 41.30 | 0.964 |
| 0.965 | 39.62 | 39.76 | 39.91 | 40.06 | 40.20 | 40.35 | 40.49 | 40.63 | 40.78 | 40.92 | 41.06 | 41.20 | 41.34 | 0.965 |
| 0.966 | 39.66 | 39.81 | 39.95 | 40.10 | 40.24 | 40.39 | 40.53 | 40.68 | 40.82 | 40.96 | 41.10 | 41.25 | 41.39 | 0.966 |
| 0.967 | 39.70 | 39.85 | 40.00 | 40.14 | 40.29 | 40.43 | 40.58 | 40.72 | 40.86 | 41.01 | 41.15 | 41.29 | 41.43 | 0.967 |
| 0.968 | 39.75 | 39.89 | 40.04 | 40.19 | 40.33 | 40.48 | 40.62 | 40.77 | 40.91 | 41.05 | 41.19 | 41.34 | 41.48 | 0.968 |
| 0.969 | 39.79 | 39.94 | 40.08 | 40.23 | 40.38 | 40.52 | 40.67 | 40.81 | 40.95 | 41.10 | 41.24 | 41.38 | 41.52 | 0.969 |
| 0.970 | 39.83 | 39.98 | 40.13 | 40.27 | 40.42 | 40.57 | 40.71 | 40.85 | 41.00 | 41.14 | 41.28 | 41.43 | 41.57 | 0.970 |
| 0.971 | 39.88 | 40.02 | 40.17 | 40.32 | 40.46 | 40.61 | 40.75 | 40.90 | 41.04 | 41.19 | 41.33 | 41.47 | 41.61 | 0.971 |
| 0.972 | 39.92 | 40.07 | 40.21 | 40.36 | 40.51 | 40.65 | 40.80 | 40.94 | 41.09 | 41.23 | 41.37 | 41.52 | 41.66 | 0.972 |
| 0.973 | 39.96 | 40.11 | 40.26 | 40.41 | 40.55 | 40.70 | 40.84 | 40.99 | 41.13 | 41.27 | 41.42 | 41.56 | 41.70 | 0.973 |
| 0.974 | 40.01 | 40.15 | 40.30 | 40.45 | 40.60 | 40.74 | 40.89 | 41.03 | 41.18 | 41.32 | 41.46 | 41.61 | 41.75 | 0.974 |
| 0.975 | 40.05 | 40.20 | 40.35 | 40.49 | 40.64 | 40.79 | 40.93 | 41.08 | 41.22 | 41.36 | 41.51 | 41.65 | 41.79 | 0.975 |
| 0.976 | 40.09 | 40.24 | 40.39 | 40.54 | 40.68 | 40.83 | 40.98 | 41.12 | 41.26 | 41.41 | 41.55 | 41.70 | 41.84 | 0.976 |
| 0.977 | 40.14 | 40.28 | 40.43 | 40.58 | 40.73 | 40.87 | 41.02 | 41.16 | 41.31 | 41.45 | 41.60 | 41.74 | 41.88 | 0.977 |
| 0.978 | 40.18 | 40.33 | 40.48 | 40.62 | 40.77 | 40.92 | 41.06 | 41.21 | 41.35 | 41.50 | 41.64 | 41.79 | 41.93 | 0.978 |
| 0.979 | 40.22 | 40.37 | 40.52 | 40.67 | 40.82 | 40.96 | 41.11 | 41.25 | 41.40 | 41.54 | 41.69 | 41.83 | 41.97 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 48 | 52 | 56 | 60 | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 39.15 | 39.29 | 39.42 | 39.56 | 39.70 | 39.83 | 39.97 | 40.10 | 40.23 | 40.37 | 40.50 | 40.63 | 40.76 | 0.930 |
| 0.931 | 39.20 | 39.33 | 39.47 | 39.61 | 39.74 | 39.88 | 40.01 | 40.14 | 40.28 | 40.41 | 40.54 | 40.68 | 40.81 | 0.931 |
| 0.932 | 39.24 | 39.38 | 39.51 | 39.65 | 39.79 | 39.92 | 40.06 | 40.19 | 40.32 | 40.46 | 40.59 | 40.72 | 40.85 | 0.932 |
| 0.933 | 39.28 | 39.42 | 39.56 | 39.69 | 39.83 | 39.97 | 40.10 | 40.24 | 40.37 | 40.50 | 40.64 | 40.77 | 40.90 | 0.933 |
| 0.934 | 39.33 | 39.47 | 39.60 | 39.74 | 39.88 | 40.01 | 40.15 | 40.28 | 40.42 | 40.55 | 40.68 | 40.81 | 40.95 | 0.934 |
| 0.935 | 39.37 | 39.51 | 39.65 | 39.78 | 39.92 | 40.06 | 40.19 | 40.33 | 40.46 | 40.59 | 40.73 | 40.86 | 40.99 | 0.935 |
| 0.936 | 39.42 | 39.55 | 39.69 | 39.83 | 39.97 | 40.10 | 40.24 | 40.37 | 40.51 | 40.64 | 40.77 | 40.91 | 41.04 | 0.936 |
| 0.937 | 39.46 | 39.60 | 39.74 | 39.87 | 40.01 | 40.15 | 40.28 | 40.42 | 40.55 | 40.69 | 40.82 | 40.95 | 41.09 | 0.937 |
| 0.938 | 39.51 | 39.64 | 39.78 | 39.92 | 40.06 | 40.19 | 40.33 | 40.46 | 40.60 | 40.73 | 40.87 | 41.00 | 41.13 | 0.938 |
| 0.939 | 39.55 | 39.69 | 39.83 | 39.96 | 40.10 | 40.24 | 40.37 | 40.51 | 40.64 | 40.78 | 40.91 | 41.04 | 41.18 | 0.939 |
| 0.940 | 39.59 | 39.73 | 39.87 | 40.01 | 40.15 | 40.28 | 40.42 | 40.55 | 40.69 | 40.82 | 40.96 | 41.09 | 41.22 | 0.940 |
| 0.941 | 39.64 | 39.78 | 39.92 | 40.05 | 40.19 | 40.33 | 40.46 | 40.60 | 40.73 | 40.87 | 41.00 | 41.14 | 41.27 | 0.941 |
| 0.942 | 39.68 | 39.82 | 39.96 | 40.10 | 40.24 | 40.37 | 40.51 | 40.64 | 40.78 | 40.91 | 41.05 | 41.18 | 41.32 | 0.942 |
| 0.943 | 39.73 | 39.87 | 40.01 | 40.14 | 40.28 | 40.42 | 40.55 | 40.69 | 40.83 | 40.96 | 41.09 | 41.23 | 41.36 | 0.943 |
| 0.944 | 39.77 | 39.91 | 40.05 | 40.19 | 40.33 | 40.46 | 40.60 | 40.74 | 40.87 | 41.01 | 41.14 | 41.27 | 41.41 | 0.944 |
| 0.945 | 39.82 | 39.96 | 40.09 | 40.23 | 40.37 | 40.51 | 40.64 | 40.78 | 40.92 | 41.05 | 41.19 | 41.32 | 41.45 | 0.945 |
| 0.946 | 39.86 | 40.00 | 40.14 | 40.28 | 40.42 | 40.55 | 40.69 | 40.83 | 40.96 | 41.10 | 41.23 | 41.37 | 41.50 | 0.946 |
| 0.947 | 39.90 | 40.04 | 40.18 | 40.32 | 40.46 | 40.60 | 40.74 | 40.87 | 41.01 | 41.14 | 41.28 | 41.41 | 41.55 | 0.947 |
| 0.948 | 39.95 | 40.09 | 40.23 | 40.37 | 40.51 | 40.64 | 40.78 | 40.92 | 41.05 | 41.19 | 41.32 | 41.46 | 41.59 | 0.948 |
| 0.949 | 39.99 | 40.13 | 40.27 | 40.41 | 40.55 | 40.69 | 40.83 | 40.96 | 41.10 | 41.23 | 41.37 | 41.50 | 41.64 | 0.949 |
| 0.950 | 40.04 | 40.18 | 40.32 | 40.46 | 40.60 | 40.73 | 40.87 | 41.01 | 41.14 | 41.28 | 41.42 | 41.55 | 41.69 | 0.950 |
| 0.951 | 40.08 | 40.22 | 40.36 | 40.50 | 40.64 | 40.78 | 40.92 | 41.05 | 41.19 | 41.33 | 41.46 | 41.60 | 41.73 | 0.951 |
| 0.952 | 40.13 | 40.27 | 40.41 | 40.55 | 40.69 | 40.82 | 40.96 | 41.10 | 41.24 | 41.37 | 41.51 | 41.64 | 41.78 | 0.952 |
| 0.953 | 40.17 | 40.31 | 40.45 | 40.59 | 40.73 | 40.87 | 41.01 | 41.14 | 41.28 | 41.42 | 41.55 | 41.69 | 41.82 | 0.953 |
| 0.954 | 40.22 | 40.36 | 40.50 | 40.64 | 40.78 | 40.91 | 41.05 | 41.19 | 41.33 | 41.46 | 41.60 | 41.74 | 41.87 | 0.954 |
| 0.955 | 40.26 | 40.40 | 40.54 | 40.68 | 40.82 | 40.96 | 41.10 | 41.24 | 41.37 | 41.51 | 41.65 | 41.78 | 41.92 | 0.955 |
| 0.956 | 40.30 | 40.45 | 40.59 | 40.73 | 40.87 | 41.00 | 41.14 | 41.28 | 41.42 | 41.56 | 41.69 | 41.83 | 41.96 | 0.956 |
| 0.957 | 40.35 | 40.49 | 40.63 | 40.77 | 40.91 | 41.05 | 41.19 | 41.33 | 41.46 | 41.60 | 41.74 | 41.87 | 42.01 | 0.957 |
| 0.958 | 40.39 | 40.53 | 40.68 | 40.82 | 40.96 | 41.09 | 41.23 | 41.37 | 41.51 | 41.65 | 41.78 | 41.92 | 42.06 | 0.958 |
| 0.959 | 40.44 | 40.58 | 40.72 | 40.86 | 41.00 | 41.14 | 41.28 | 41.42 | 41.56 | 41.69 | 41.83 | 41.97 | 42.10 | 0.959 |
| 0.960 | 40.48 | 40.62 | 40.76 | 40.91 | 41.05 | 41.19 | 41.32 | 41.46 | 41.60 | 41.74 | 41.88 | 42.01 | 42.15 | 0.960 |
| 0.961 | 40.53 | 40.67 | 40.81 | 40.95 | 41.09 | 41.23 | 41.37 | 41.51 | 41.65 | 41.78 | 41.92 | 42.06 | 42.19 | 0.961 |
| 0.962 | 40.57 | 40.71 | 40.85 | 41.00 | 41.14 | 41.28 | 41.41 | 41.55 | 41.69 | 41.83 | 41.97 | 42.10 | 42.24 | 0.962 |
| 0.963 | 40.62 | 40.76 | 40.90 | 41.04 | 41.18 | 41.32 | 41.46 | 41.60 | 41.74 | 41.88 | 42.01 | 42.15 | 42.29 | 0.963 |
| 0.964 | 40.66 | 40.80 | 40.94 | 41.09 | 41.23 | 41.37 | 41.51 | 41.64 | 41.78 | 41.92 | 42.06 | 42.20 | 42.33 | 0.964 |
| 0.965 | 40.70 | 40.85 | 40.99 | 41.13 | 41.27 | 41.41 | 41.55 | 41.69 | 41.83 | 41.97 | 42.10 | 42.24 | 42.38 | 0.965 |
| 0.966 | 40.75 | 40.89 | 41.03 | 41.17 | 41.32 | 41.46 | 41.60 | 41.74 | 41.87 | 42.01 | 42.15 | 42.29 | 42.43 | 0.966 |
| 0.967 | 40.79 | 40.94 | 41.08 | 41.22 | 41.36 | 41.50 | 41.64 | 41.78 | 41.92 | 42.06 | 42.20 | 42.33 | 42.47 | 0.967 |
| 0.968 | 40.84 | 40.98 | 41.12 | 41.26 | 41.41 | 41.55 | 41.69 | 41.83 | 41.97 | 42.10 | 42.24 | 42.38 | 42.52 | 0.968 |
| 0.969 | 40.88 | 41.02 | 41.17 | 41.31 | 41.45 | 41.59 | 41.73 | 41.87 | 42.01 | 42.15 | 42.29 | 42.43 | 42.56 | 0.969 |
| 0.970 | 40.93 | 41.07 | 41.21 | 41.35 | 41.50 | 41.64 | 41.78 | 41.92 | 42.06 | 42.20 | 42.33 | 42.47 | 42.61 | 0.970 |
| 0.971 | 40.97 | 41.11 | 41.26 | 41.40 | 41.54 | 41.68 | 41.82 | 41.96 | 42.10 | 42.24 | 42.38 | 42.52 | 42.66 | 0.971 |
| 0.972 | 41.02 | 41.16 | 41.30 | 41.44 | 41.59 | 41.73 | 41.87 | 42.01 | 42.15 | 42.29 | 42.43 | 42.56 | 42.70 | 0.972 |
| 0.973 | 41.06 | 41.20 | 41.35 | 41.49 | 41.63 | 41.77 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 42.61 | 42.75 | 0.973 |
| 0.974 | 41.10 | 41.25 | 41.39 | 41.53 | 41.68 | 41.82 | 41.96 | 42.10 | 42.24 | 42.38 | 42.52 | 42.66 | 42.80 | 0.974 |
| 0.975 | 41.15 | 41.29 | 41.44 | 41.58 | 41.72 | 41.86 | 42.00 | 42.15 | 42.29 | 42.43 | 42.56 | 42.70 | 42.84 | 0.975 |
| 0.976 | 41.19 | 41.34 | 41.48 | 41.62 | 41.77 | 41.91 | 42.05 | 42.19 | 42.33 | 42.47 | 42.61 | 42.75 | 42.89 | 0.976 |
| 0.977 | 41.24 | 41.38 | 41.53 | 41.67 | 41.81 | 41.95 | 42.10 | 42.24 | 42.38 | 42.52 | 42.66 | 42.80 | 42.93 | 0.977 |
| 0.978 | 41.28 | 41.43 | 41.57 | 41.71 | 41.86 | 42.00 | 42.14 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 42.98 | 0.978 |
| 0.979 | 41.33 | 41.47 | 41.61 | 41.76 | 41.90 | 42.04 | 42.19 | 42.33 | 42.47 | 42.61 | 42.75 | 42.89 | 43.03 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 40.10 | 40.23 | 40.37 | 40.50 | 40.63 | 40.76 | 40.89 | 41.02 | 41.15 | 41.28 | 41.41 | 41.54 | 41.67 | 0.930 |
| 0.931 | 40.14 | 40.28 | 40.41 | 40.54 | 40.68 | 40.81 | 40.94 | 41.07 | 41.20 | 41.33 | 41.46 | 41.59 | 41.72 | 0.931 |
| 0.932 | 40.19 | 40.32 | 40.46 | 40.59 | 40.72 | 40.85 | 40.99 | 41.12 | 41.25 | 41.38 | 41.51 | 41.64 | 41.76 | 0.932 |
| 0.933 | 40.24 | 40.37 | 40.50 | 40.64 | 40.77 | 40.90 | 41.03 | 41.16 | 41.29 | 41.42 | 41.55 | 41.68 | 41.81 | 0.933 |
| 0.934 | 40.28 | 40.42 | 40.55 | 40.68 | 40.81 | 40.95 | 41.08 | 41.21 | 41.34 | 41.47 | 41.60 | 41.73 | 41.86 | 0.934 |
| 0.935 | 40.33 | 40.46 | 40.59 | 40.73 | 40.86 | 40.99 | 41.12 | 41.26 | 41.39 | 41.52 | 41.65 | 41.78 | 41.91 | 0.935 |
| 0.936 | 40.37 | 40.51 | 40.64 | 40.77 | 40.91 | 41.04 | 41.17 | 41.30 | 41.43 | 41.56 | 41.69 | 41.82 | 41.95 | 0.936 |
| 0.937 | 40.42 | 40.55 | 40.69 | 40.82 | 40.95 | 41.09 | 41.22 | 41.35 | 41.48 | 41.61 | 41.74 | 41.87 | 42.00 | 0.937 |
| 0.938 | 40.46 | 40.60 | 40.73 | 40.87 | 41.00 | 41.13 | 41.26 | 41.40 | 41.53 | 41.66 | 41.79 | 41.92 | 42.05 | 0.938 |
| 0.939 | 40.51 | 40.64 | 40.78 | 40.91 | 41.04 | 41.18 | 41.31 | 41.44 | 41.57 | 41.70 | 41.83 | 41.96 | 42.09 | 0.939 |
| 0.940 | 40.55 | 40.69 | 40.82 | 40.96 | 41.09 | 41.22 | 41.36 | 41.49 | 41.62 | 41.75 | 41.88 | 42.01 | 42.14 | 0.940 |
| 0.941 | 40.60 | 40.73 | 40.87 | 41.00 | 41.14 | 41.27 | 41.40 | 41.53 | 41.67 | 41.80 | 41.93 | 42.06 | 42.19 | 0.941 |
| 0.942 | 40.64 | 40.78 | 40.91 | 41.05 | 41.18 | 41.32 | 41.45 | 41.58 | 41.71 | 41.84 | 41.98 | 42.11 | 42.24 | 0.942 |
| 0.943 | 40.69 | 40.83 | 40.96 | 41.09 | 41.23 | 41.36 | 41.50 | 41.63 | 41.76 | 41.89 | 42.02 | 42.15 | 42.28 | 0.943 |
| 0.944 | 40.74 | 40.87 | 41.01 | 41.14 | 41.27 | 41.41 | 41.54 | 41.67 | 41.81 | 41.94 | 42.07 | 42.20 | 42.33 | 0.944 |
| 0.945 | 40.78 | 40.92 | 41.05 | 41.19 | 41.32 | 41.45 | 41.59 | 41.72 | 41.85 | 41.98 | 42.12 | 42.25 | 42.38 | 0.945 |
| 0.946 | 40.83 | 40.96 | 41.10 | 41.23 | 41.37 | 41.50 | 41.63 | 41.77 | 41.90 | 42.03 | 42.16 | 42.29 | 42.42 | 0.946 |
| 0.947 | 40.87 | 41.01 | 41.14 | 41.28 | 41.41 | 41.55 | 41.68 | 41.81 | 41.95 | 42.08 | 42.21 | 42.34 | 42.47 | 0.947 |
| 0.948 | 40.92 | 41.05 | 41.19 | 41.32 | 41.46 | 41.59 | 41.73 | 41.86 | 41.99 | 42.13 | 42.26 | 42.39 | 42.52 | 0.948 |
| 0.949 | 40.96 | 41.10 | 41.23 | 41.37 | 41.50 | 41.64 | 41.77 | 41.91 | 42.04 | 42.17 | 42.30 | 42.44 | 42.57 | 0.949 |
| 0.950 | 41.01 | 41.14 | 41.28 | 41.42 | 41.55 | 41.69 | 41.82 | 41.95 | 42.09 | 42.22 | 42.35 | 42.48 | 42.61 | 0.950 |
| 0.951 | 41.05 | 41.19 | 41.33 | 41.46 | 41.60 | 41.73 | 41.87 | 42.00 | 42.13 | 42.27 | 42.40 | 42.53 | 42.66 | 0.951 |
| 0.952 | 41.10 | 41.24 | 41.37 | 41.51 | 41.64 | 41.78 | 41.91 | 42.05 | 42.18 | 42.31 | 42.44 | 42.58 | 42.71 | 0.952 |
| 0.953 | 41.14 | 41.28 | 41.42 | 41.55 | 41.69 | 41.82 | 41.96 | 42.09 | 42.23 | 42.36 | 42.49 | 42.62 | 42.76 | 0.953 |
| 0.954 | 41.19 | 41.33 | 41.46 | 41.60 | 41.74 | 41.87 | 42.00 | 42.14 | 42.27 | 42.41 | 42.54 | 42.67 | 42.80 | 0.954 |
| 0.955 | 41.24 | 41.37 | 41.51 | 41.65 | 41.78 | 41.92 | 42.05 | 42.19 | 42.32 | 42.45 | 42.59 | 42.72 | 42.85 | 0.955 |
| 0.956 | 41.28 | 41.42 | 41.56 | 41.69 | 41.83 | 41.96 | 42.10 | 42.23 | 42.37 | 42.50 | 42.63 | 42.77 | 42.90 | 0.956 |
| 0.957 | 41.33 | 41.46 | 41.60 | 41.74 | 41.87 | 42.01 | 42.14 | 42.28 | 42.41 | 42.55 | 42.68 | 42.81 | 42.94 | 0.957 |
| 0.958 | 41.37 | 41.51 | 41.65 | 41.78 | 41.92 | 42.06 | 42.19 | 42.33 | 42.46 | 42.59 | 42.73 | 42.86 | 42.99 | 0.958 |
| 0.959 | 41.42 | 41.56 | 41.69 | 41.83 | 41.97 | 42.10 | 42.24 | 42.37 | 42.51 | 42.64 | 42.77 | 42.91 | 43.04 | 0.959 |
| 0.960 | 41.46 | 41.60 | 41.74 | 41.88 | 42.01 | 42.15 | 42.28 | 42.42 | 42.55 | 42.69 | 42.82 | 42.95 | 43.09 | 0.960 |
| 0.961 | 41.51 | 41.65 | 41.78 | 41.92 | 42.06 | 42.19 | 42.33 | 42.46 | 42.60 | 42.73 | 42.87 | 43.00 | 43.13 | 0.961 |
| 0.962 | 41.55 | 41.69 | 41.83 | 41.97 | 42.10 | 42.24 | 42.38 | 42.51 | 42.65 | 42.78 | 42.91 | 43.05 | 43.18 | 0.962 |
| 0.963 | 41.60 | 41.74 | 41.88 | 42.01 | 42.15 | 42.29 | 42.42 | 42.56 | 42.69 | 42.83 | 42.96 | 43.10 | 43.23 | 0.963 |
| 0.964 | 41.64 | 41.78 | 41.92 | 42.06 | 42.20 | 42.33 | 42.47 | 42.60 | 42.74 | 42.87 | 43.01 | 43.14 | 43.28 | 0.964 |
| 0.965 | 41.69 | 41.83 | 41.97 | 42.10 | 42.24 | 42.38 | 42.52 | 42.65 | 42.79 | 42.92 | 43.06 | 43.19 | 43.32 | 0.965 |
| 0.966 | 41.74 | 41.87 | 42.01 | 42.15 | 42.29 | 42.43 | 42.56 | 42.70 | 42.83 | 42.97 | 43.10 | 43.24 | 43.37 | 0.966 |
| 0.967 | 41.78 | 41.92 | 42.06 | 42.20 | 42.33 | 42.47 | 42.61 | 42.74 | 42.88 | 43.01 | 43.15 | 43.28 | 43.42 | 0.967 |
| 0.968 | 41.83 | 41.97 | 42.10 | 42.24 | 42.38 | 42.52 | 42.65 | 42.79 | 42.93 | 43.06 | 43.20 | 43.33 | 43.46 | 0.968 |
| 0.969 | 41.87 | 42.01 | 42.15 | 42.29 | 42.43 | 42.56 | 42.70 | 42.84 | 42.97 | 43.11 | 43.24 | 43.38 | 43.51 | 0.969 |
| 0.970 | 41.92 | 42.06 | 42.20 | 42.33 | 42.47 | 42.61 | 42.75 | 42.88 | 43.02 | 43.16 | 43.29 | 43.42 | 43.56 | 0.970 |
| 0.971 | 41.96 | 42.10 | 42.24 | 42.38 | 42.52 | 42.66 | 42.79 | 42.93 | 43.07 | 43.20 | 43.34 | 43.47 | 43.61 | 0.971 |
| 0.972 | 42.01 | 42.15 | 42.29 | 42.43 | 42.56 | 42.70 | 42.84 | 42.98 | 43.11 | 43.25 | 43.38 | 43.52 | 43.65 | 0.972 |
| 0.973 | 42.05 | 42.19 | 42.33 | 42.47 | 42.61 | 42.75 | 42.89 | 43.02 | 43.16 | 43.30 | 43.43 | 43.57 | 43.70 | 0.973 |
| 0.974 | 42.10 | 42.24 | 42.38 | 42.52 | 42.66 | 42.80 | 42.93 | 43.07 | 43.21 | 43.34 | 43.48 | 43.61 | 43.75 | 0.974 |
| 0.975 | 42.15 | 42.29 | 42.43 | 42.56 | 42.70 | 42.84 | 42.98 | 43.12 | 43.25 | 43.39 | 43.53 | 43.66 | 43.80 | 0.975 |
| 0.976 | 42.19 | 42.33 | 42.47 | 42.61 | 42.75 | 42.89 | 43.03 | 43.16 | 43.30 | 43.44 | 43.57 | 43.71 | 43.84 | 0.976 |
| 0.977 | 42.24 | 42.38 | 42.52 | 42.66 | 42.80 | 42.93 | 43.07 | 43.21 | 43.35 | 43.48 | 43.62 | 43.76 | 43.89 | 0.977 |
| 0.978 | 42.28 | 42.42 | 42.56 | 42.70 | 42.84 | 42.98 | 43.12 | 43.26 | 43.39 | 43.53 | 43.67 | 43.80 | 43.94 | 0.978 |
| 0.979 | 42.33 | 42.47 | 42.61 | 42.75 | 42.89 | 43.03 | 43.16 | 43.30 | 43.44 | 43.58 | 43.71 | 43.85 | 43.98 | 0.979 |

09-0014

Thermo Scientific
Flow Look-Up Table for PM10 VFC
High Volume Air Sampler

Serial # P9328 X

Calibrated with Rootsmeter serial # 0438320

Date Calibrated: 05/08/15

USE OF LOOK-UP-TABLE FOR DETERMINATION OF FLOW RATE PM10 VFC High Volume Air Sampler

1. Determine and record atmospheric properties.
2. Operate sampler and allow to warm up. Perform leak test and make sure all gaskets are in place and that there are no leaks.
3. Read the differential pressure across the filter (P_f), inches of H_2O that has to be converted to mm Hg. Reading is taken with a manometer where one side is open to atmosphere and the other is connected to pressure tap on side of filter holder. Filter should be in place for this measurement.
4. Calculate pressure ratio, P_o / P_a $P_o / P_a = 1 - (P_f / P_a)$
 P_f and P_a should be in mm Hg
5. Look up flow rate in look up table. The first 4 pages are in Celsius and actual m^3/min the last 4 pages are in Fahrenheit and actual cubic feet.

Example

(NOTE: Individual Look Up Tables will vary.)

1. Suppose the ambient conditions are:

Temperature: $T_a = 24^\circ C$

Barometric Pressure: $P_a = 762$ mm Hg (this must be station pressure which is not corrected to sea level)

2. Assume system is allowed to warm up for stable operation.
3. Measure filter pressure differential, P_f . This reading is the set-up reading plus pick-up reading divided by 2 for an average reading. This is taken with a differential manometer with one side of the manometer connected to the stagnation tap on the filter holder (or the Bulkhead Fitting) and the other side open to the atmosphere. Filter must be in place during this measurement.

Assume that:

Set-up Reading: $P_f = 18.60$ in H_2O

Pick-up Reading: $P_f = 19.80$ in H_2O

$P_f = (18.60 + 19.80)/2 = 19.20$ in H_2O .

4. Convert $P_f =$ to same units as barometric pressure.

$$P_f = 19.20 \text{ in H}_2\text{O} / 13.61 \times 25.4 = 35.83 \text{ mm Hg}$$

$$P_f = 35.83 \text{ mm Hg}$$

5. Calculate pressure ratio.

$$P_o/P_a = 1 - (P_f/P_a)$$

NOTE: P_f and P_a MUST HAVE CONSISTENT UNITS

$$P_o/P_a = 1 - (35.83 / 762) \quad P_o/P_a = .953$$

6. Look up Flow Rate from table.

Table 1 (pages 1 – 4) is set up with temperature in °C and the Flow Rate is read in units of m^3/min (actual, ACMM). In table 2 (pages 5 – 8) the temperature is in °F and Flow Rate is read in ft^3/min (actual, ACFM).

a) For the example we will use Table 1.

Locate the temperature and pressure ratio entries nearest the conditions of:

$$T_a = 24^\circ\text{C}$$

$$P_o/P_a = .953$$

Example: Look-Up Table for Actual Flow Rate in Units of m^3/min

| | Temperature °C | | | | |
|-------|----------------|--------------|-------|-------|-------|
| Po/Pa | 22 | 24 | 26 | 28 | 30 |
| 0.950 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 |
| 0.951 | 1.144 | 1.147 | 1.150 | 1.154 | 1.157 |
| 0.952 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 |
| 0.953 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 |
| 0.954 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 |
| 0.955 | 1.149 | 1.152 | 1.156 | 1.159 | 1.162 |

b) The reading of flow rate is: $Q_a = 1.150 \text{ m}^3/\text{min}$ (actual)

If your P_o/P_a number is not in look up table ie; $>.979$ then interpolate.

7. Determine flow rate in terms of standard air.

$$Q_{\text{std}} = 1.150 \text{ m}^3 / \text{min} \left(\frac{762 \text{ mm Hg}}{760 \text{ mm Hg}} \right) \left(\frac{298\text{K}}{(273 + 24) \text{K}} \right)$$

$$Q_{\text{std}} = 1.157 \text{ std m}^3/\text{min}$$

It is always a good idea to contact the lab that you are dealing with to determine what information that they need including actual or standard air with respect to flow rate.

| Po/Pa | TEMPERATURE °C Flow rate m3/min (actual) | | | | | | | | | | | | | Po/Pa |
|-------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | -32 | -30 | -28 | -26 | -24 | -22 | -20 | -18 | -16 | -14 | -12 | -10 | -8 | |
| 0.930 | 1.038 | 1.042 | 1.046 | 1.050 | 1.053 | 1.057 | 1.061 | 1.065 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 0.930 |
| 0.931 | 1.040 | 1.043 | 1.047 | 1.051 | 1.055 | 1.058 | 1.062 | 1.066 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 0.931 |
| 0.932 | 1.041 | 1.044 | 1.048 | 1.052 | 1.056 | 1.060 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.085 | 0.932 |
| 0.933 | 1.042 | 1.046 | 1.049 | 1.053 | 1.057 | 1.061 | 1.064 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 0.933 |
| 0.934 | 1.043 | 1.047 | 1.051 | 1.054 | 1.058 | 1.062 | 1.066 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 1.088 | 0.934 |
| 0.935 | 1.044 | 1.048 | 1.052 | 1.056 | 1.059 | 1.063 | 1.067 | 1.071 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 0.935 |
| 0.936 | 1.045 | 1.049 | 1.053 | 1.057 | 1.061 | 1.064 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.090 | 0.936 |
| 0.937 | 1.047 | 1.050 | 1.054 | 1.058 | 1.062 | 1.066 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 1.088 | 1.091 | 0.937 |
| 0.938 | 1.048 | 1.052 | 1.055 | 1.059 | 1.063 | 1.067 | 1.070 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 0.938 |
| 0.939 | 1.049 | 1.053 | 1.057 | 1.060 | 1.064 | 1.068 | 1.072 | 1.075 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 0.939 |
| 0.940 | 1.050 | 1.054 | 1.058 | 1.062 | 1.065 | 1.069 | 1.073 | 1.077 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 0.940 |
| 0.941 | 1.051 | 1.055 | 1.059 | 1.063 | 1.067 | 1.070 | 1.074 | 1.078 | 1.082 | 1.085 | 1.089 | 1.093 | 1.096 | 0.941 |
| 0.942 | 1.052 | 1.056 | 1.060 | 1.064 | 1.068 | 1.072 | 1.075 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 0.942 |
| 0.943 | 1.054 | 1.057 | 1.061 | 1.065 | 1.069 | 1.073 | 1.076 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 1.099 | 0.943 |
| 0.944 | 1.055 | 1.059 | 1.062 | 1.066 | 1.070 | 1.074 | 1.078 | 1.081 | 1.085 | 1.089 | 1.093 | 1.096 | 1.100 | 0.944 |
| 0.945 | 1.056 | 1.060 | 1.064 | 1.068 | 1.071 | 1.075 | 1.079 | 1.083 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 0.945 |
| 0.946 | 1.057 | 1.061 | 1.065 | 1.069 | 1.073 | 1.076 | 1.080 | 1.084 | 1.088 | 1.091 | 1.095 | 1.099 | 1.103 | 0.946 |
| 0.947 | 1.058 | 1.062 | 1.066 | 1.070 | 1.074 | 1.078 | 1.081 | 1.085 | 1.089 | 1.093 | 1.096 | 1.100 | 1.104 | 0.947 |
| 0.948 | 1.059 | 1.063 | 1.067 | 1.071 | 1.075 | 1.079 | 1.083 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 0.948 |
| 0.949 | 1.061 | 1.065 | 1.068 | 1.072 | 1.076 | 1.080 | 1.084 | 1.087 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 0.949 |
| 0.950 | 1.062 | 1.066 | 1.070 | 1.073 | 1.077 | 1.081 | 1.085 | 1.089 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 0.950 |
| 0.951 | 1.063 | 1.067 | 1.071 | 1.075 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.097 | 1.101 | 1.105 | 1.109 | 0.951 |
| 0.952 | 1.064 | 1.068 | 1.072 | 1.076 | 1.080 | 1.084 | 1.087 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 0.952 |
| 0.953 | 1.065 | 1.069 | 1.073 | 1.077 | 1.081 | 1.085 | 1.089 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 0.953 |
| 0.954 | 1.067 | 1.070 | 1.074 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 0.954 |
| 0.955 | 1.068 | 1.072 | 1.076 | 1.079 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 1.114 | 0.955 |
| 0.956 | 1.069 | 1.073 | 1.077 | 1.081 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 0.956 |
| 0.957 | 1.070 | 1.074 | 1.078 | 1.082 | 1.086 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 0.957 |
| 0.958 | 1.071 | 1.075 | 1.079 | 1.083 | 1.087 | 1.091 | 1.095 | 1.098 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 0.958 |
| 0.959 | 1.072 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.103 | 1.107 | 1.111 | 1.115 | 1.118 | 0.959 |
| 0.960 | 1.074 | 1.078 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.108 | 1.112 | 1.116 | 1.120 | 0.960 |
| 0.961 | 1.075 | 1.079 | 1.083 | 1.087 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.121 | 0.961 |
| 0.962 | 1.076 | 1.080 | 1.084 | 1.088 | 1.092 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 0.962 |
| 0.963 | 1.077 | 1.081 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.123 | 0.963 |
| 0.964 | 1.078 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 0.964 |
| 0.965 | 1.080 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.114 | 1.118 | 1.122 | 1.126 | 0.965 |
| 0.966 | 1.081 | 1.085 | 1.089 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.119 | 1.123 | 1.127 | 0.966 |
| 0.967 | 1.082 | 1.086 | 1.090 | 1.094 | 1.098 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.125 | 1.128 | 0.967 |
| 0.968 | 1.083 | 1.087 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.110 | 1.114 | 1.118 | 1.122 | 1.126 | 1.130 | 0.968 |
| 0.969 | 1.084 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.115 | 1.119 | 1.123 | 1.127 | 1.131 | 0.969 |
| 0.970 | 1.085 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.117 | 1.121 | 1.124 | 1.128 | 1.132 | 0.970 |
| 0.971 | 1.087 | 1.091 | 1.095 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.122 | 1.126 | 1.129 | 1.133 | 0.971 |
| 0.972 | 1.088 | 1.092 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 1.127 | 1.131 | 1.134 | 0.972 |
| 0.973 | 1.089 | 1.093 | 1.097 | 1.101 | 1.105 | 1.109 | 1.113 | 1.116 | 1.120 | 1.124 | 1.128 | 1.132 | 1.136 | 0.973 |
| 0.974 | 1.090 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.114 | 1.118 | 1.122 | 1.125 | 1.129 | 1.133 | 1.137 | 0.974 |
| 0.975 | 1.091 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 1.127 | 1.130 | 1.134 | 1.138 | 0.975 |
| 0.976 | 1.092 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.124 | 1.128 | 1.132 | 1.136 | 1.139 | 0.976 |
| 0.977 | 1.094 | 1.098 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.121 | 1.125 | 1.129 | 1.133 | 1.137 | 1.141 | 0.977 |
| 0.978 | 1.095 | 1.099 | 1.103 | 1.107 | 1.111 | 1.115 | 1.119 | 1.123 | 1.126 | 1.130 | 1.134 | 1.138 | 1.142 | 0.978 |
| 0.979 | 1.096 | 1.100 | 1.104 | 1.108 | 1.112 | 1.116 | 1.120 | 1.124 | 1.128 | 1.131 | 1.135 | 1.139 | 1.143 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | -6 | -4 | -2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.087 | 1.090 | 1.094 | 1.097 | 1.101 | 1.104 | 1.108 | 1.111 | 1.115 | 1.119 | 1.122 | 1.125 | 1.129 | 0.930 |
| 0.931 | 1.088 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 1.109 | 1.113 | 1.116 | 1.120 | 1.123 | 1.127 | 1.130 | 0.931 |
| 0.932 | 1.089 | 1.093 | 1.096 | 1.100 | 1.103 | 1.107 | 1.110 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 1.131 | 0.932 |
| 0.933 | 1.090 | 1.094 | 1.097 | 1.101 | 1.105 | 1.108 | 1.112 | 1.115 | 1.119 | 1.122 | 1.126 | 1.129 | 1.133 | 0.933 |
| 0.934 | 1.091 | 1.095 | 1.099 | 1.102 | 1.106 | 1.109 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 0.934 |
| 0.935 | 1.093 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.114 | 1.118 | 1.121 | 1.125 | 1.128 | 1.132 | 1.135 | 0.935 |
| 0.936 | 1.094 | 1.098 | 1.101 | 1.105 | 1.108 | 1.112 | 1.115 | 1.119 | 1.123 | 1.126 | 1.130 | 1.133 | 1.137 | 0.936 |
| 0.937 | 1.095 | 1.099 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.120 | 1.124 | 1.127 | 1.131 | 1.134 | 1.138 | 0.937 |
| 0.938 | 1.096 | 1.100 | 1.104 | 1.107 | 1.111 | 1.114 | 1.118 | 1.122 | 1.125 | 1.129 | 1.132 | 1.136 | 1.139 | 0.938 |
| 0.939 | 1.098 | 1.101 | 1.105 | 1.108 | 1.112 | 1.116 | 1.119 | 1.123 | 1.126 | 1.130 | 1.133 | 1.137 | 1.140 | 0.939 |
| 0.940 | 1.099 | 1.102 | 1.106 | 1.110 | 1.113 | 1.117 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 1.138 | 1.142 | 0.940 |
| 0.941 | 1.100 | 1.104 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.125 | 1.129 | 1.132 | 1.136 | 1.139 | 1.143 | 0.941 |
| 0.942 | 1.101 | 1.105 | 1.109 | 1.112 | 1.116 | 1.119 | 1.123 | 1.127 | 1.130 | 1.134 | 1.137 | 1.141 | 1.144 | 0.942 |
| 0.943 | 1.103 | 1.106 | 1.110 | 1.113 | 1.117 | 1.121 | 1.124 | 1.128 | 1.131 | 1.135 | 1.139 | 1.142 | 1.146 | 0.943 |
| 0.944 | 1.104 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 1.147 | 0.944 |
| 0.945 | 1.105 | 1.109 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.130 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 0.945 |
| 0.946 | 1.106 | 1.110 | 1.114 | 1.117 | 1.121 | 1.124 | 1.128 | 1.132 | 1.135 | 1.139 | 1.142 | 1.146 | 1.149 | 0.946 |
| 0.947 | 1.107 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 1.129 | 1.133 | 1.136 | 1.140 | 1.144 | 1.147 | 1.151 | 0.947 |
| 0.948 | 1.109 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.131 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 1.152 | 0.948 |
| 0.949 | 1.110 | 1.114 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.135 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 0.949 |
| 0.950 | 1.111 | 1.115 | 1.118 | 1.122 | 1.126 | 1.129 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 1.151 | 1.155 | 0.950 |
| 0.951 | 1.112 | 1.116 | 1.120 | 1.123 | 1.127 | 1.131 | 1.134 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 0.951 |
| 0.952 | 1.114 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.154 | 1.157 | 0.952 |
| 0.953 | 1.115 | 1.119 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.140 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 0.953 |
| 0.954 | 1.116 | 1.120 | 1.123 | 1.127 | 1.131 | 1.134 | 1.138 | 1.142 | 1.145 | 1.149 | 1.153 | 1.156 | 1.160 | 0.954 |
| 0.955 | 1.117 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 0.955 |
| 0.956 | 1.119 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.159 | 1.162 | 0.956 |
| 0.957 | 1.120 | 1.123 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 0.957 |
| 0.958 | 1.121 | 1.125 | 1.128 | 1.132 | 1.136 | 1.139 | 1.143 | 1.147 | 1.150 | 1.154 | 1.158 | 1.161 | 1.165 | 0.958 |
| 0.959 | 1.122 | 1.126 | 1.130 | 1.133 | 1.137 | 1.141 | 1.144 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 0.959 |
| 0.960 | 1.123 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.149 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 0.960 |
| 0.961 | 1.125 | 1.128 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.169 | 0.961 |
| 0.962 | 1.126 | 1.130 | 1.133 | 1.137 | 1.141 | 1.144 | 1.148 | 1.152 | 1.155 | 1.159 | 1.163 | 1.166 | 1.170 | 0.962 |
| 0.963 | 1.127 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.149 | 1.153 | 1.157 | 1.160 | 1.164 | 1.168 | 1.171 | 0.963 |
| 0.964 | 1.128 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 0.964 |
| 0.965 | 1.130 | 1.133 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.174 | 0.965 |
| 0.966 | 1.131 | 1.135 | 1.138 | 1.142 | 1.146 | 1.149 | 1.153 | 1.157 | 1.160 | 1.164 | 1.168 | 1.171 | 1.175 | 0.966 |
| 0.967 | 1.132 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.165 | 1.169 | 1.173 | 1.176 | 0.967 |
| 0.968 | 1.133 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.167 | 1.170 | 1.174 | 1.178 | 0.968 |
| 0.969 | 1.135 | 1.138 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 1.175 | 1.179 | 0.969 |
| 0.970 | 1.136 | 1.140 | 1.143 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 0.970 |
| 0.971 | 1.137 | 1.141 | 1.145 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.167 | 1.170 | 1.174 | 1.178 | 1.181 | 0.971 |
| 0.972 | 1.138 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 1.175 | 1.179 | 1.183 | 0.972 |
| 0.973 | 1.139 | 1.143 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 1.177 | 1.180 | 1.184 | 0.973 |
| 0.974 | 1.141 | 1.144 | 1.148 | 1.152 | 1.156 | 1.159 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 1.182 | 1.185 | 0.974 |
| 0.975 | 1.142 | 1.146 | 1.150 | 1.153 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 1.187 | 0.975 |
| 0.976 | 1.143 | 1.147 | 1.151 | 1.155 | 1.158 | 1.162 | 1.166 | 1.169 | 1.173 | 1.177 | 1.181 | 1.184 | 1.188 | 0.976 |
| 0.977 | 1.144 | 1.148 | 1.152 | 1.156 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 1.182 | 1.185 | 1.189 | 0.977 |
| 0.978 | 1.146 | 1.149 | 1.153 | 1.157 | 1.161 | 1.165 | 1.168 | 1.172 | 1.176 | 1.179 | 1.183 | 1.187 | 1.190 | 0.978 |
| 0.979 | 1.147 | 1.151 | 1.154 | 1.158 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.184 | 1.188 | 1.192 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.125 | 1.129 | 1.132 | 1.136 | 1.139 | 1.143 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.166 | 0.930 |
| 0.931 | 1.127 | 1.130 | 1.134 | 1.137 | 1.141 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.164 | 1.168 | 0.931 |
| 0.932 | 1.128 | 1.131 | 1.135 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 0.932 |
| 0.933 | 1.129 | 1.133 | 1.136 | 1.140 | 1.143 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.170 | 0.933 |
| 0.934 | 1.131 | 1.134 | 1.138 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 0.934 |
| 0.935 | 1.132 | 1.135 | 1.139 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 0.935 |
| 0.936 | 1.133 | 1.137 | 1.140 | 1.144 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 0.936 |
| 0.937 | 1.134 | 1.138 | 1.141 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 0.937 |
| 0.938 | 1.136 | 1.139 | 1.143 | 1.146 | 1.150 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 0.938 |
| 0.939 | 1.137 | 1.140 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 1.178 | 0.939 |
| 0.940 | 1.138 | 1.142 | 1.145 | 1.149 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 0.940 |
| 0.941 | 1.139 | 1.143 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 1.181 | 0.941 |
| 0.942 | 1.141 | 1.144 | 1.148 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 1.182 | 0.942 |
| 0.943 | 1.142 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 0.943 |
| 0.944 | 1.143 | 1.147 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 1.185 | 0.944 |
| 0.945 | 1.145 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 0.945 |
| 0.946 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.187 | 0.946 |
| 0.947 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.185 | 1.189 | 0.947 |
| 0.948 | 1.148 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 0.948 |
| 0.949 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 0.949 |
| 0.950 | 1.151 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 0.950 |
| 0.951 | 1.152 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 0.951 |
| 0.952 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.195 | 0.952 |
| 0.953 | 1.155 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 0.953 |
| 0.954 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 0.954 |
| 0.955 | 1.157 | 1.161 | 1.164 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 1.196 | 1.199 | 0.955 |
| 0.956 | 1.159 | 1.162 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 0.956 |
| 0.957 | 1.160 | 1.163 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 0.957 |
| 0.958 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 0.958 |
| 0.959 | 1.162 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 0.959 |
| 0.960 | 1.164 | 1.167 | 1.171 | 1.174 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 0.960 |
| 0.961 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 0.961 |
| 0.962 | 1.166 | 1.170 | 1.173 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 0.962 |
| 0.963 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 0.963 |
| 0.964 | 1.169 | 1.172 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 0.964 |
| 0.965 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 0.965 |
| 0.966 | 1.171 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 0.966 |
| 0.967 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 0.967 |
| 0.968 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 0.968 |
| 0.969 | 1.175 | 1.179 | 1.182 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 0.969 |
| 0.970 | 1.176 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 0.970 |
| 0.971 | 1.178 | 1.181 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.214 | 1.217 | 1.221 | 0.971 |
| 0.972 | 1.179 | 1.183 | 1.186 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 0.972 |
| 0.973 | 1.180 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 0.973 |
| 0.974 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 0.974 |
| 0.975 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 0.975 |
| 0.976 | 1.184 | 1.188 | 1.191 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 0.976 |
| 0.977 | 1.185 | 1.189 | 1.193 | 1.196 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 0.977 |
| 0.978 | 1.187 | 1.190 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 0.978 |
| 0.979 | 1.188 | 1.192 | 1.195 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.228 | 1.231 | 0.979 |

TEMPERATURE °C Flow rate m3/min (actual)

| Po/Pa | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 1.143 | 1.146 | 1.149 | 1.153 | 1.156 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 1.176 | 1.180 | 1.183 | 0.930 |
| 0.931 | 1.144 | 1.147 | 1.151 | 1.154 | 1.158 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 1.178 | 1.181 | 1.184 | 0.931 |
| 0.932 | 1.145 | 1.149 | 1.152 | 1.155 | 1.159 | 1.162 | 1.166 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 0.932 |
| 0.933 | 1.147 | 1.150 | 1.153 | 1.157 | 1.160 | 1.164 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 1.187 | 0.933 |
| 0.934 | 1.148 | 1.151 | 1.155 | 1.158 | 1.161 | 1.165 | 1.168 | 1.172 | 1.175 | 1.178 | 1.182 | 1.185 | 1.188 | 0.934 |
| 0.935 | 1.149 | 1.153 | 1.156 | 1.159 | 1.163 | 1.166 | 1.170 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 1.190 | 0.935 |
| 0.936 | 1.150 | 1.154 | 1.157 | 1.161 | 1.164 | 1.168 | 1.171 | 1.174 | 1.178 | 1.181 | 1.184 | 1.188 | 1.191 | 0.936 |
| 0.937 | 1.152 | 1.155 | 1.159 | 1.162 | 1.165 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 0.937 |
| 0.938 | 1.153 | 1.156 | 1.160 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.180 | 1.184 | 1.187 | 1.190 | 1.194 | 0.938 |
| 0.939 | 1.154 | 1.158 | 1.161 | 1.165 | 1.168 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.188 | 1.192 | 1.195 | 0.939 |
| 0.940 | 1.156 | 1.159 | 1.163 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.186 | 1.190 | 1.193 | 1.196 | 0.940 |
| 0.941 | 1.157 | 1.160 | 1.164 | 1.167 | 1.171 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.194 | 1.198 | 0.941 |
| 0.942 | 1.158 | 1.162 | 1.165 | 1.169 | 1.172 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 1.196 | 1.199 | 0.942 |
| 0.943 | 1.160 | 1.163 | 1.166 | 1.170 | 1.173 | 1.177 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.200 | 0.943 |
| 0.944 | 1.161 | 1.164 | 1.168 | 1.171 | 1.175 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.198 | 1.202 | 0.944 |
| 0.945 | 1.162 | 1.166 | 1.169 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.196 | 1.200 | 1.203 | 0.945 |
| 0.946 | 1.163 | 1.167 | 1.170 | 1.174 | 1.177 | 1.181 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.204 | 0.946 |
| 0.947 | 1.165 | 1.168 | 1.172 | 1.175 | 1.179 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.202 | 1.206 | 0.947 |
| 0.948 | 1.166 | 1.169 | 1.173 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 0.948 |
| 0.949 | 1.167 | 1.171 | 1.174 | 1.178 | 1.181 | 1.185 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.208 | 0.949 |
| 0.950 | 1.169 | 1.172 | 1.176 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.206 | 1.210 | 0.950 |
| 0.951 | 1.170 | 1.173 | 1.177 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 0.951 |
| 0.952 | 1.171 | 1.175 | 1.178 | 1.182 | 1.185 | 1.189 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.212 | 0.952 |
| 0.953 | 1.172 | 1.176 | 1.179 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.210 | 1.214 | 0.953 |
| 0.954 | 1.174 | 1.177 | 1.181 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 0.954 |
| 0.955 | 1.175 | 1.179 | 1.182 | 1.186 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.216 | 0.955 |
| 0.956 | 1.176 | 1.180 | 1.183 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.214 | 1.218 | 0.956 |
| 0.957 | 1.178 | 1.181 | 1.185 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 0.957 |
| 0.958 | 1.179 | 1.182 | 1.186 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.220 | 0.958 |
| 0.959 | 1.180 | 1.184 | 1.187 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.218 | 1.222 | 0.959 |
| 0.960 | 1.182 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 0.960 |
| 0.961 | 1.183 | 1.186 | 1.190 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.224 | 0.961 |
| 0.962 | 1.184 | 1.188 | 1.191 | 1.195 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.222 | 1.226 | 0.962 |
| 0.963 | 1.185 | 1.189 | 1.192 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 0.963 |
| 0.964 | 1.187 | 1.190 | 1.194 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.228 | 0.964 |
| 0.965 | 1.188 | 1.192 | 1.195 | 1.199 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 0.965 |
| 0.966 | 1.189 | 1.193 | 1.196 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 1.231 | 0.966 |
| 0.967 | 1.191 | 1.194 | 1.198 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 1.229 | 1.232 | 0.967 |
| 0.968 | 1.192 | 1.195 | 1.199 | 1.203 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.223 | 1.227 | 1.230 | 1.234 | 0.968 |
| 0.969 | 1.193 | 1.197 | 1.200 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 1.232 | 1.235 | 0.969 |
| 0.970 | 1.194 | 1.198 | 1.202 | 1.205 | 1.209 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 1.233 | 1.237 | 0.970 |
| 0.971 | 1.196 | 1.199 | 1.203 | 1.206 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.227 | 1.231 | 1.234 | 1.238 | 0.971 |
| 0.972 | 1.197 | 1.201 | 1.204 | 1.208 | 1.211 | 1.215 | 1.218 | 1.222 | 1.225 | 1.229 | 1.232 | 1.236 | 1.239 | 0.972 |
| 0.973 | 1.198 | 1.202 | 1.206 | 1.209 | 1.213 | 1.216 | 1.220 | 1.223 | 1.227 | 1.230 | 1.234 | 1.237 | 1.241 | 0.973 |
| 0.974 | 1.200 | 1.203 | 1.207 | 1.210 | 1.214 | 1.217 | 1.221 | 1.224 | 1.228 | 1.231 | 1.235 | 1.238 | 1.242 | 0.974 |
| 0.975 | 1.201 | 1.205 | 1.208 | 1.212 | 1.215 | 1.219 | 1.222 | 1.226 | 1.229 | 1.233 | 1.236 | 1.240 | 1.243 | 0.975 |
| 0.976 | 1.202 | 1.206 | 1.209 | 1.213 | 1.217 | 1.220 | 1.224 | 1.227 | 1.231 | 1.234 | 1.238 | 1.241 | 1.245 | 0.976 |
| 0.977 | 1.204 | 1.207 | 1.211 | 1.214 | 1.218 | 1.221 | 1.225 | 1.228 | 1.232 | 1.235 | 1.239 | 1.242 | 1.246 | 0.977 |
| 0.978 | 1.205 | 1.208 | 1.212 | 1.216 | 1.219 | 1.223 | 1.226 | 1.230 | 1.233 | 1.237 | 1.240 | 1.244 | 1.247 | 0.978 |
| 0.979 | 1.206 | 1.210 | 1.213 | 1.217 | 1.220 | 1.224 | 1.228 | 1.231 | 1.235 | 1.238 | 1.242 | 1.245 | 1.249 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | -12 | -8 | -4 | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 37.17 | 37.32 | 37.46 | 37.61 | 37.75 | 37.90 | 38.04 | 38.19 | 38.33 | 38.47 | 38.61 | 38.75 | 38.89 | 0.930 |
| 0.931 | 37.21 | 37.36 | 37.51 | 37.65 | 37.80 | 37.94 | 38.09 | 38.23 | 38.37 | 38.51 | 38.65 | 38.79 | 38.93 | 0.931 |
| 0.932 | 37.26 | 37.40 | 37.55 | 37.70 | 37.84 | 37.98 | 38.13 | 38.27 | 38.41 | 38.56 | 38.70 | 38.84 | 38.98 | 0.932 |
| 0.933 | 37.30 | 37.45 | 37.59 | 37.74 | 37.88 | 38.03 | 38.17 | 38.31 | 38.46 | 38.60 | 38.74 | 38.88 | 39.02 | 0.933 |
| 0.934 | 37.34 | 37.49 | 37.63 | 37.78 | 37.93 | 38.07 | 38.21 | 38.36 | 38.50 | 38.64 | 38.78 | 38.93 | 39.07 | 0.934 |
| 0.935 | 37.38 | 37.53 | 37.68 | 37.82 | 37.97 | 38.11 | 38.26 | 38.40 | 38.54 | 38.69 | 38.83 | 38.97 | 39.11 | 0.935 |
| 0.936 | 37.42 | 37.57 | 37.72 | 37.87 | 38.01 | 38.16 | 38.30 | 38.44 | 38.59 | 38.73 | 38.87 | 39.01 | 39.15 | 0.936 |
| 0.937 | 37.47 | 37.61 | 37.76 | 37.91 | 38.05 | 38.20 | 38.34 | 38.49 | 38.63 | 38.77 | 38.92 | 39.06 | 39.20 | 0.937 |
| 0.938 | 37.51 | 37.66 | 37.80 | 37.95 | 38.10 | 38.24 | 38.39 | 38.53 | 38.67 | 38.82 | 38.96 | 39.10 | 39.24 | 0.938 |
| 0.939 | 37.55 | 37.70 | 37.85 | 37.99 | 38.14 | 38.29 | 38.43 | 38.57 | 38.72 | 38.86 | 39.00 | 39.15 | 39.29 | 0.939 |
| 0.940 | 37.59 | 37.74 | 37.89 | 38.04 | 38.18 | 38.33 | 38.47 | 38.62 | 38.76 | 38.90 | 39.05 | 39.19 | 39.33 | 0.940 |
| 0.941 | 37.63 | 37.78 | 37.93 | 38.08 | 38.22 | 38.37 | 38.52 | 38.66 | 38.80 | 38.95 | 39.09 | 39.23 | 39.38 | 0.941 |
| 0.942 | 37.68 | 37.83 | 37.97 | 38.12 | 38.27 | 38.41 | 38.56 | 38.70 | 38.85 | 38.99 | 39.13 | 39.28 | 39.42 | 0.942 |
| 0.943 | 37.72 | 37.87 | 38.02 | 38.16 | 38.31 | 38.46 | 38.60 | 38.75 | 38.89 | 39.04 | 39.18 | 39.32 | 39.46 | 0.943 |
| 0.944 | 37.76 | 37.91 | 38.06 | 38.21 | 38.35 | 38.50 | 38.65 | 38.79 | 38.94 | 39.08 | 39.22 | 39.37 | 39.51 | 0.944 |
| 0.945 | 37.80 | 37.95 | 38.10 | 38.25 | 38.40 | 38.54 | 38.69 | 38.83 | 38.98 | 39.12 | 39.27 | 39.41 | 39.55 | 0.945 |
| 0.946 | 37.85 | 37.99 | 38.14 | 38.29 | 38.44 | 38.59 | 38.73 | 38.88 | 39.02 | 39.17 | 39.31 | 39.45 | 39.60 | 0.946 |
| 0.947 | 37.89 | 38.04 | 38.19 | 38.33 | 38.48 | 38.63 | 38.77 | 38.92 | 39.07 | 39.21 | 39.35 | 39.50 | 39.64 | 0.947 |
| 0.948 | 37.93 | 38.08 | 38.23 | 38.38 | 38.52 | 38.67 | 38.82 | 38.96 | 39.11 | 39.25 | 39.40 | 39.54 | 39.68 | 0.948 |
| 0.949 | 37.97 | 38.12 | 38.27 | 38.42 | 38.57 | 38.71 | 38.86 | 39.01 | 39.15 | 39.30 | 39.44 | 39.58 | 39.73 | 0.949 |
| 0.950 | 38.01 | 38.16 | 38.31 | 38.46 | 38.61 | 38.76 | 38.90 | 39.05 | 39.20 | 39.34 | 39.48 | 39.63 | 39.77 | 0.950 |
| 0.951 | 38.06 | 38.21 | 38.36 | 38.50 | 38.65 | 38.80 | 38.95 | 39.09 | 39.24 | 39.38 | 39.53 | 39.67 | 39.82 | 0.951 |
| 0.952 | 38.10 | 38.25 | 38.40 | 38.55 | 38.70 | 38.84 | 38.99 | 39.14 | 39.28 | 39.43 | 39.57 | 39.72 | 39.86 | 0.952 |
| 0.953 | 38.14 | 38.29 | 38.44 | 38.59 | 38.74 | 38.89 | 39.03 | 39.18 | 39.33 | 39.47 | 39.62 | 39.76 | 39.90 | 0.953 |
| 0.954 | 38.18 | 38.33 | 38.48 | 38.63 | 38.78 | 38.93 | 39.08 | 39.22 | 39.37 | 39.51 | 39.66 | 39.80 | 39.95 | 0.954 |
| 0.955 | 38.22 | 38.38 | 38.53 | 38.68 | 38.82 | 38.97 | 39.12 | 39.27 | 39.41 | 39.56 | 39.70 | 39.85 | 39.99 | 0.955 |
| 0.956 | 38.27 | 38.42 | 38.57 | 38.72 | 38.87 | 39.02 | 39.16 | 39.31 | 39.46 | 39.60 | 39.75 | 39.89 | 40.04 | 0.956 |
| 0.957 | 38.31 | 38.46 | 38.61 | 38.76 | 38.91 | 39.06 | 39.21 | 39.35 | 39.50 | 39.65 | 39.79 | 39.94 | 40.08 | 0.957 |
| 0.958 | 38.35 | 38.50 | 38.65 | 38.80 | 38.95 | 39.10 | 39.25 | 39.40 | 39.54 | 39.69 | 39.83 | 39.98 | 40.12 | 0.958 |
| 0.959 | 38.39 | 38.54 | 38.70 | 38.85 | 39.00 | 39.14 | 39.29 | 39.44 | 39.59 | 39.73 | 39.88 | 40.02 | 40.17 | 0.959 |
| 0.960 | 38.44 | 38.59 | 38.74 | 38.89 | 39.04 | 39.19 | 39.34 | 39.48 | 39.63 | 39.78 | 39.92 | 40.07 | 40.21 | 0.960 |
| 0.961 | 38.48 | 38.63 | 38.78 | 38.93 | 39.08 | 39.23 | 39.38 | 39.53 | 39.67 | 39.82 | 39.97 | 40.11 | 40.26 | 0.961 |
| 0.962 | 38.52 | 38.67 | 38.82 | 38.97 | 39.12 | 39.27 | 39.42 | 39.57 | 39.72 | 39.86 | 40.01 | 40.16 | 40.30 | 0.962 |
| 0.963 | 38.56 | 38.71 | 38.87 | 39.02 | 39.17 | 39.32 | 39.46 | 39.61 | 39.76 | 39.91 | 40.05 | 40.20 | 40.34 | 0.963 |
| 0.964 | 38.60 | 38.76 | 38.91 | 39.06 | 39.21 | 39.36 | 39.51 | 39.66 | 39.80 | 39.95 | 40.10 | 40.24 | 40.39 | 0.964 |
| 0.965 | 38.65 | 38.80 | 38.95 | 39.10 | 39.25 | 39.40 | 39.55 | 39.70 | 39.85 | 39.99 | 40.14 | 40.29 | 40.43 | 0.965 |
| 0.966 | 38.69 | 38.84 | 38.99 | 39.14 | 39.29 | 39.44 | 39.59 | 39.74 | 39.89 | 40.04 | 40.19 | 40.33 | 40.48 | 0.966 |
| 0.967 | 38.73 | 38.88 | 39.04 | 39.19 | 39.34 | 39.49 | 39.64 | 39.79 | 39.93 | 40.08 | 40.23 | 40.38 | 40.52 | 0.967 |
| 0.968 | 38.77 | 38.93 | 39.08 | 39.23 | 39.38 | 39.53 | 39.68 | 39.83 | 39.98 | 40.13 | 40.27 | 40.42 | 40.57 | 0.968 |
| 0.969 | 38.81 | 38.97 | 39.12 | 39.27 | 39.42 | 39.57 | 39.72 | 39.87 | 40.02 | 40.17 | 40.32 | 40.46 | 40.61 | 0.969 |
| 0.970 | 38.86 | 39.01 | 39.16 | 39.31 | 39.47 | 39.62 | 39.77 | 39.92 | 40.06 | 40.21 | 40.36 | 40.51 | 40.65 | 0.970 |
| 0.971 | 38.90 | 39.05 | 39.21 | 39.36 | 39.51 | 39.66 | 39.81 | 39.96 | 40.11 | 40.26 | 40.40 | 40.55 | 40.70 | 0.971 |
| 0.972 | 38.94 | 39.10 | 39.25 | 39.40 | 39.55 | 39.70 | 39.85 | 40.00 | 40.15 | 40.30 | 40.45 | 40.60 | 40.74 | 0.972 |
| 0.973 | 38.98 | 39.14 | 39.29 | 39.44 | 39.59 | 39.75 | 39.90 | 40.05 | 40.20 | 40.34 | 40.49 | 40.64 | 40.79 | 0.973 |
| 0.974 | 39.03 | 39.18 | 39.33 | 39.49 | 39.64 | 39.79 | 39.94 | 40.09 | 40.24 | 40.39 | 40.54 | 40.68 | 40.83 | 0.974 |
| 0.975 | 39.07 | 39.22 | 39.38 | 39.53 | 39.68 | 39.83 | 39.98 | 40.13 | 40.28 | 40.43 | 40.58 | 40.73 | 40.87 | 0.975 |
| 0.976 | 39.11 | 39.26 | 39.42 | 39.57 | 39.72 | 39.87 | 40.03 | 40.18 | 40.33 | 40.47 | 40.62 | 40.77 | 40.92 | 0.976 |
| 0.977 | 39.15 | 39.31 | 39.46 | 39.61 | 39.77 | 39.92 | 40.07 | 40.22 | 40.37 | 40.52 | 40.67 | 40.82 | 40.96 | 0.977 |
| 0.978 | 39.19 | 39.35 | 39.50 | 39.66 | 39.81 | 39.96 | 40.11 | 40.26 | 40.41 | 40.56 | 40.71 | 40.86 | 41.01 | 0.978 |
| 0.979 | 39.24 | 39.39 | 39.55 | 39.70 | 39.85 | 40.00 | 40.16 | 40.31 | 40.46 | 40.61 | 40.75 | 40.90 | 41.05 | 0.979 |

| Po/Pa | TEMPERATURE °F Flow rate ft3/min (actual) | | | | | | | | | | | | Po/Pa | |
|-------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 18 | 22 | 26 | 30 | 34 | 38 | 42 | 46 | 50 | 54 | 58 | 62 | | 66 |
| 0.930 | 38.26 | 38.40 | 38.54 | 38.68 | 38.82 | 38.96 | 39.10 | 39.24 | 39.38 | 39.51 | 39.65 | 39.79 | 39.92 | 0.930 |
| 0.931 | 38.30 | 38.44 | 38.58 | 38.72 | 38.86 | 39.00 | 39.14 | 39.28 | 39.42 | 39.56 | 39.70 | 39.83 | 39.97 | 0.931 |
| 0.932 | 38.34 | 38.49 | 38.63 | 38.77 | 38.91 | 39.05 | 39.19 | 39.33 | 39.47 | 39.60 | 39.74 | 39.88 | 40.01 | 0.932 |
| 0.933 | 38.39 | 38.53 | 38.67 | 38.81 | 38.95 | 39.09 | 39.23 | 39.37 | 39.51 | 39.65 | 39.78 | 39.92 | 40.06 | 0.933 |
| 0.934 | 38.43 | 38.57 | 38.71 | 38.86 | 39.00 | 39.14 | 39.28 | 39.42 | 39.55 | 39.69 | 39.83 | 39.97 | 40.10 | 0.934 |
| 0.935 | 38.47 | 38.62 | 38.76 | 38.90 | 39.04 | 39.18 | 39.32 | 39.46 | 39.60 | 39.74 | 39.87 | 40.01 | 40.15 | 0.935 |
| 0.936 | 38.52 | 38.66 | 38.80 | 38.94 | 39.08 | 39.22 | 39.37 | 39.50 | 39.64 | 39.78 | 39.92 | 40.06 | 40.19 | 0.936 |
| 0.937 | 38.56 | 38.70 | 38.85 | 38.99 | 39.13 | 39.27 | 39.41 | 39.55 | 39.69 | 39.83 | 39.96 | 40.10 | 40.24 | 0.937 |
| 0.938 | 38.60 | 38.75 | 38.89 | 39.03 | 39.17 | 39.31 | 39.45 | 39.59 | 39.73 | 39.87 | 40.01 | 40.15 | 40.28 | 0.938 |
| 0.939 | 38.65 | 38.79 | 38.93 | 39.07 | 39.22 | 39.36 | 39.50 | 39.64 | 39.78 | 39.92 | 40.05 | 40.19 | 40.33 | 0.939 |
| 0.940 | 38.69 | 38.83 | 38.98 | 39.12 | 39.26 | 39.40 | 39.54 | 39.68 | 39.82 | 39.96 | 40.10 | 40.24 | 40.37 | 0.940 |
| 0.941 | 38.73 | 38.88 | 39.02 | 39.16 | 39.30 | 39.45 | 39.59 | 39.73 | 39.87 | 40.01 | 40.14 | 40.28 | 40.42 | 0.941 |
| 0.942 | 38.78 | 38.92 | 39.06 | 39.21 | 39.35 | 39.49 | 39.63 | 39.77 | 39.91 | 40.05 | 40.19 | 40.33 | 40.46 | 0.942 |
| 0.943 | 38.82 | 38.96 | 39.11 | 39.25 | 39.39 | 39.53 | 39.68 | 39.82 | 39.96 | 40.10 | 40.23 | 40.37 | 40.51 | 0.943 |
| 0.944 | 38.86 | 39.01 | 39.15 | 39.29 | 39.44 | 39.58 | 39.72 | 39.86 | 40.00 | 40.14 | 40.28 | 40.42 | 40.56 | 0.944 |
| 0.945 | 38.91 | 39.05 | 39.19 | 39.34 | 39.48 | 39.62 | 39.76 | 39.90 | 40.04 | 40.18 | 40.32 | 40.46 | 40.60 | 0.945 |
| 0.946 | 38.95 | 39.09 | 39.24 | 39.38 | 39.52 | 39.67 | 39.81 | 39.95 | 40.09 | 40.23 | 40.37 | 40.51 | 40.65 | 0.946 |
| 0.947 | 38.99 | 39.14 | 39.28 | 39.43 | 39.57 | 39.71 | 39.85 | 39.99 | 40.13 | 40.27 | 40.41 | 40.55 | 40.69 | 0.947 |
| 0.948 | 39.04 | 39.18 | 39.33 | 39.47 | 39.61 | 39.75 | 39.90 | 40.04 | 40.18 | 40.32 | 40.46 | 40.60 | 40.74 | 0.948 |
| 0.949 | 39.08 | 39.22 | 39.37 | 39.51 | 39.66 | 39.80 | 39.94 | 40.08 | 40.22 | 40.36 | 40.50 | 40.64 | 40.78 | 0.949 |
| 0.950 | 39.12 | 39.27 | 39.41 | 39.56 | 39.70 | 39.84 | 39.99 | 40.13 | 40.27 | 40.41 | 40.55 | 40.69 | 40.83 | 0.950 |
| 0.951 | 39.17 | 39.31 | 39.46 | 39.60 | 39.74 | 39.89 | 40.03 | 40.17 | 40.31 | 40.45 | 40.59 | 40.73 | 40.87 | 0.951 |
| 0.952 | 39.21 | 39.36 | 39.50 | 39.64 | 39.79 | 39.93 | 40.07 | 40.22 | 40.36 | 40.50 | 40.64 | 40.78 | 40.92 | 0.952 |
| 0.953 | 39.25 | 39.40 | 39.54 | 39.69 | 39.83 | 39.98 | 40.12 | 40.26 | 40.40 | 40.54 | 40.68 | 40.82 | 40.96 | 0.953 |
| 0.954 | 39.30 | 39.44 | 39.59 | 39.73 | 39.88 | 40.02 | 40.16 | 40.30 | 40.45 | 40.59 | 40.73 | 40.87 | 41.01 | 0.954 |
| 0.955 | 39.34 | 39.49 | 39.63 | 39.78 | 39.92 | 40.06 | 40.21 | 40.35 | 40.49 | 40.63 | 40.77 | 40.91 | 41.05 | 0.955 |
| 0.956 | 39.38 | 39.53 | 39.67 | 39.82 | 39.96 | 40.11 | 40.25 | 40.39 | 40.54 | 40.68 | 40.82 | 40.96 | 41.10 | 0.956 |
| 0.957 | 39.43 | 39.57 | 39.72 | 39.86 | 40.01 | 40.15 | 40.30 | 40.44 | 40.58 | 40.72 | 40.86 | 41.00 | 41.14 | 0.957 |
| 0.958 | 39.47 | 39.62 | 39.76 | 39.91 | 40.05 | 40.20 | 40.34 | 40.48 | 40.63 | 40.77 | 40.91 | 41.05 | 41.19 | 0.958 |
| 0.959 | 39.51 | 39.66 | 39.81 | 39.95 | 40.10 | 40.24 | 40.38 | 40.53 | 40.67 | 40.81 | 40.95 | 41.09 | 41.23 | 0.959 |
| 0.960 | 39.56 | 39.70 | 39.85 | 40.00 | 40.14 | 40.28 | 40.43 | 40.57 | 40.71 | 40.86 | 41.00 | 41.14 | 41.28 | 0.960 |
| 0.961 | 39.60 | 39.75 | 39.89 | 40.04 | 40.18 | 40.33 | 40.47 | 40.62 | 40.76 | 40.90 | 41.04 | 41.18 | 41.32 | 0.961 |
| 0.962 | 39.64 | 39.79 | 39.94 | 40.08 | 40.23 | 40.37 | 40.52 | 40.66 | 40.80 | 40.95 | 41.09 | 41.23 | 41.37 | 0.962 |
| 0.963 | 39.69 | 39.83 | 39.98 | 40.13 | 40.27 | 40.42 | 40.56 | 40.71 | 40.85 | 40.99 | 41.13 | 41.27 | 41.42 | 0.963 |
| 0.964 | 39.73 | 39.88 | 40.02 | 40.17 | 40.32 | 40.46 | 40.61 | 40.75 | 40.89 | 41.04 | 41.18 | 41.32 | 41.46 | 0.964 |
| 0.965 | 39.77 | 39.92 | 40.07 | 40.21 | 40.36 | 40.51 | 40.65 | 40.79 | 40.94 | 41.08 | 41.22 | 41.36 | 41.51 | 0.965 |
| 0.966 | 39.82 | 39.96 | 40.11 | 40.26 | 40.40 | 40.55 | 40.69 | 40.84 | 40.98 | 41.13 | 41.27 | 41.41 | 41.55 | 0.966 |
| 0.967 | 39.86 | 40.01 | 40.16 | 40.30 | 40.45 | 40.59 | 40.74 | 40.88 | 41.03 | 41.17 | 41.31 | 41.45 | 41.60 | 0.967 |
| 0.968 | 39.90 | 40.05 | 40.20 | 40.35 | 40.49 | 40.64 | 40.78 | 40.93 | 41.07 | 41.21 | 41.36 | 41.50 | 41.64 | 0.968 |
| 0.969 | 39.95 | 40.10 | 40.24 | 40.39 | 40.54 | 40.68 | 40.83 | 40.97 | 41.12 | 41.26 | 41.40 | 41.55 | 41.69 | 0.969 |
| 0.970 | 39.99 | 40.14 | 40.29 | 40.43 | 40.58 | 40.73 | 40.87 | 41.02 | 41.16 | 41.30 | 41.45 | 41.59 | 41.73 | 0.970 |
| 0.971 | 40.03 | 40.18 | 40.33 | 40.48 | 40.62 | 40.77 | 40.92 | 41.06 | 41.21 | 41.35 | 41.49 | 41.64 | 41.78 | 0.971 |
| 0.972 | 40.08 | 40.23 | 40.37 | 40.52 | 40.67 | 40.81 | 40.96 | 41.11 | 41.25 | 41.39 | 41.54 | 41.68 | 41.82 | 0.972 |
| 0.973 | 40.12 | 40.27 | 40.42 | 40.57 | 40.71 | 40.86 | 41.01 | 41.15 | 41.30 | 41.44 | 41.58 | 41.73 | 41.87 | 0.973 |
| 0.974 | 40.16 | 40.31 | 40.46 | 40.61 | 40.76 | 40.90 | 41.05 | 41.19 | 41.34 | 41.48 | 41.63 | 41.77 | 41.91 | 0.974 |
| 0.975 | 40.21 | 40.36 | 40.51 | 40.65 | 40.80 | 40.95 | 41.09 | 41.24 | 41.38 | 41.53 | 41.67 | 41.82 | 41.96 | 0.975 |
| 0.976 | 40.25 | 40.40 | 40.55 | 40.70 | 40.84 | 40.99 | 41.14 | 41.28 | 41.43 | 41.57 | 41.72 | 41.86 | 42.00 | 0.976 |
| 0.977 | 40.29 | 40.44 | 40.59 | 40.74 | 40.89 | 41.04 | 41.18 | 41.33 | 41.47 | 41.62 | 41.76 | 41.91 | 42.05 | 0.977 |
| 0.978 | 40.34 | 40.49 | 40.64 | 40.79 | 40.93 | 41.08 | 41.23 | 41.37 | 41.52 | 41.66 | 41.81 | 41.95 | 42.09 | 0.978 |
| 0.979 | 40.38 | 40.53 | 40.68 | 40.83 | 40.98 | 41.12 | 41.27 | 41.42 | 41.56 | 41.71 | 41.85 | 42.00 | 42.14 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 48 | 52 | 56 | 60 | 64 | 68 | 72 | 76 | 80 | 84 | 88 | 92 | 96 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 39.31 | 39.44 | 39.58 | 39.72 | 39.85 | 39.99 | 40.13 | 40.26 | 40.39 | 40.53 | 40.66 | 40.79 | 40.93 | 0.930 |
| 0.931 | 39.35 | 39.49 | 39.63 | 39.76 | 39.90 | 40.04 | 40.17 | 40.31 | 40.44 | 40.57 | 40.71 | 40.84 | 40.97 | 0.931 |
| 0.932 | 39.40 | 39.53 | 39.67 | 39.81 | 39.94 | 40.08 | 40.22 | 40.35 | 40.49 | 40.62 | 40.75 | 40.89 | 41.02 | 0.932 |
| 0.933 | 39.44 | 39.58 | 39.72 | 39.85 | 39.99 | 40.13 | 40.26 | 40.40 | 40.53 | 40.67 | 40.80 | 40.93 | 41.06 | 0.933 |
| 0.934 | 39.48 | 39.62 | 39.76 | 39.90 | 40.04 | 40.17 | 40.31 | 40.44 | 40.58 | 40.71 | 40.84 | 40.98 | 41.11 | 0.934 |
| 0.935 | 39.53 | 39.67 | 39.81 | 39.94 | 40.08 | 40.22 | 40.35 | 40.49 | 40.62 | 40.76 | 40.89 | 41.02 | 41.16 | 0.935 |
| 0.936 | 39.57 | 39.71 | 39.85 | 39.99 | 40.13 | 40.26 | 40.40 | 40.53 | 40.67 | 40.80 | 40.94 | 41.07 | 41.20 | 0.936 |
| 0.937 | 39.62 | 39.76 | 39.90 | 40.03 | 40.17 | 40.31 | 40.44 | 40.58 | 40.71 | 40.85 | 40.98 | 41.12 | 41.25 | 0.937 |
| 0.938 | 39.66 | 39.80 | 39.94 | 40.08 | 40.22 | 40.35 | 40.49 | 40.62 | 40.76 | 40.89 | 41.03 | 41.16 | 41.30 | 0.938 |
| 0.939 | 39.71 | 39.85 | 39.99 | 40.12 | 40.26 | 40.40 | 40.53 | 40.67 | 40.81 | 40.94 | 41.08 | 41.21 | 41.34 | 0.939 |
| 0.940 | 39.75 | 39.89 | 40.03 | 40.17 | 40.31 | 40.44 | 40.58 | 40.72 | 40.85 | 40.99 | 41.12 | 41.26 | 41.39 | 0.940 |
| 0.941 | 39.80 | 39.94 | 40.07 | 40.21 | 40.35 | 40.49 | 40.63 | 40.76 | 40.90 | 41.03 | 41.17 | 41.30 | 41.44 | 0.941 |
| 0.942 | 39.84 | 39.98 | 40.12 | 40.26 | 40.40 | 40.53 | 40.67 | 40.81 | 40.94 | 41.08 | 41.21 | 41.35 | 41.48 | 0.942 |
| 0.943 | 39.89 | 40.03 | 40.16 | 40.30 | 40.44 | 40.58 | 40.72 | 40.85 | 40.99 | 41.12 | 41.26 | 41.39 | 41.53 | 0.943 |
| 0.944 | 39.93 | 40.07 | 40.21 | 40.35 | 40.49 | 40.62 | 40.76 | 40.90 | 41.03 | 41.17 | 41.31 | 41.44 | 41.57 | 0.944 |
| 0.945 | 39.97 | 40.11 | 40.25 | 40.39 | 40.53 | 40.67 | 40.81 | 40.94 | 41.08 | 41.22 | 41.35 | 41.49 | 41.62 | 0.945 |
| 0.946 | 40.02 | 40.16 | 40.30 | 40.44 | 40.58 | 40.71 | 40.85 | 40.99 | 41.13 | 41.26 | 41.40 | 41.53 | 41.67 | 0.946 |
| 0.947 | 40.06 | 40.20 | 40.34 | 40.48 | 40.62 | 40.76 | 40.90 | 41.04 | 41.17 | 41.31 | 41.44 | 41.58 | 41.71 | 0.947 |
| 0.948 | 40.11 | 40.25 | 40.39 | 40.53 | 40.67 | 40.81 | 40.94 | 41.08 | 41.22 | 41.35 | 41.49 | 41.62 | 41.76 | 0.948 |
| 0.949 | 40.15 | 40.29 | 40.43 | 40.57 | 40.71 | 40.85 | 40.99 | 41.13 | 41.26 | 41.40 | 41.54 | 41.67 | 41.81 | 0.949 |
| 0.950 | 40.20 | 40.34 | 40.48 | 40.62 | 40.76 | 40.90 | 41.03 | 41.17 | 41.31 | 41.45 | 41.58 | 41.72 | 41.85 | 0.950 |
| 0.951 | 40.24 | 40.38 | 40.52 | 40.66 | 40.80 | 40.94 | 41.08 | 41.22 | 41.35 | 41.49 | 41.63 | 41.76 | 41.90 | 0.951 |
| 0.952 | 40.29 | 40.43 | 40.57 | 40.71 | 40.85 | 40.99 | 41.13 | 41.26 | 41.40 | 41.54 | 41.67 | 41.81 | 41.95 | 0.952 |
| 0.953 | 40.33 | 40.47 | 40.61 | 40.75 | 40.89 | 41.03 | 41.17 | 41.31 | 41.45 | 41.58 | 41.72 | 41.86 | 41.99 | 0.953 |
| 0.954 | 40.38 | 40.52 | 40.66 | 40.80 | 40.94 | 41.08 | 41.22 | 41.35 | 41.49 | 41.63 | 41.77 | 41.90 | 42.04 | 0.954 |
| 0.955 | 40.42 | 40.56 | 40.70 | 40.84 | 40.98 | 41.12 | 41.26 | 41.40 | 41.54 | 41.68 | 41.81 | 41.95 | 42.08 | 0.955 |
| 0.956 | 40.46 | 40.61 | 40.75 | 40.89 | 41.03 | 41.17 | 41.31 | 41.45 | 41.58 | 41.72 | 41.86 | 41.99 | 42.13 | 0.956 |
| 0.957 | 40.51 | 40.65 | 40.79 | 40.93 | 41.07 | 41.21 | 41.35 | 41.49 | 41.63 | 41.77 | 41.90 | 42.04 | 42.18 | 0.957 |
| 0.958 | 40.55 | 40.70 | 40.84 | 40.98 | 41.12 | 41.26 | 41.40 | 41.54 | 41.68 | 41.81 | 41.95 | 42.09 | 42.22 | 0.958 |
| 0.959 | 40.60 | 40.74 | 40.88 | 41.02 | 41.16 | 41.30 | 41.44 | 41.58 | 41.72 | 41.86 | 42.00 | 42.13 | 42.27 | 0.959 |
| 0.960 | 40.64 | 40.79 | 40.93 | 41.07 | 41.21 | 41.35 | 41.49 | 41.63 | 41.77 | 41.91 | 42.04 | 42.18 | 42.32 | 0.960 |
| 0.961 | 40.69 | 40.83 | 40.97 | 41.11 | 41.25 | 41.39 | 41.53 | 41.67 | 41.81 | 41.95 | 42.09 | 42.23 | 42.36 | 0.961 |
| 0.962 | 40.73 | 40.87 | 41.02 | 41.16 | 41.30 | 41.44 | 41.58 | 41.72 | 41.86 | 42.00 | 42.13 | 42.27 | 42.41 | 0.962 |
| 0.963 | 40.78 | 40.92 | 41.06 | 41.20 | 41.34 | 41.49 | 41.63 | 41.77 | 41.90 | 42.04 | 42.18 | 42.32 | 42.46 | 0.963 |
| 0.964 | 40.82 | 40.96 | 41.11 | 41.25 | 41.39 | 41.53 | 41.67 | 41.81 | 41.95 | 42.09 | 42.23 | 42.36 | 42.50 | 0.964 |
| 0.965 | 40.87 | 41.01 | 41.15 | 41.29 | 41.44 | 41.58 | 41.72 | 41.86 | 42.00 | 42.13 | 42.27 | 42.41 | 42.55 | 0.965 |
| 0.966 | 40.91 | 41.05 | 41.20 | 41.34 | 41.48 | 41.62 | 41.76 | 41.90 | 42.04 | 42.18 | 42.32 | 42.46 | 42.59 | 0.966 |
| 0.967 | 40.96 | 41.10 | 41.24 | 41.38 | 41.53 | 41.67 | 41.81 | 41.95 | 42.09 | 42.23 | 42.37 | 42.50 | 42.64 | 0.967 |
| 0.968 | 41.00 | 41.14 | 41.29 | 41.43 | 41.57 | 41.71 | 41.85 | 41.99 | 42.13 | 42.27 | 42.41 | 42.55 | 42.69 | 0.968 |
| 0.969 | 41.04 | 41.19 | 41.33 | 41.47 | 41.62 | 41.76 | 41.90 | 42.04 | 42.18 | 42.32 | 42.46 | 42.60 | 42.73 | 0.969 |
| 0.970 | 41.09 | 41.23 | 41.38 | 41.52 | 41.66 | 41.80 | 41.94 | 42.09 | 42.23 | 42.36 | 42.50 | 42.64 | 42.78 | 0.970 |
| 0.971 | 41.13 | 41.28 | 41.42 | 41.56 | 41.71 | 41.85 | 41.99 | 42.13 | 42.27 | 42.41 | 42.55 | 42.69 | 42.83 | 0.971 |
| 0.972 | 41.18 | 41.32 | 41.47 | 41.61 | 41.75 | 41.89 | 42.04 | 42.18 | 42.32 | 42.46 | 42.60 | 42.74 | 42.87 | 0.972 |
| 0.973 | 41.22 | 41.37 | 41.51 | 41.65 | 41.80 | 41.94 | 42.08 | 42.22 | 42.36 | 42.50 | 42.64 | 42.78 | 42.92 | 0.973 |
| 0.974 | 41.27 | 41.41 | 41.56 | 41.70 | 41.84 | 41.98 | 42.13 | 42.27 | 42.41 | 42.55 | 42.69 | 42.83 | 42.97 | 0.974 |
| 0.975 | 41.31 | 41.46 | 41.60 | 41.74 | 41.89 | 42.03 | 42.17 | 42.31 | 42.45 | 42.59 | 42.73 | 42.87 | 43.01 | 0.975 |
| 0.976 | 41.36 | 41.50 | 41.65 | 41.79 | 41.93 | 42.08 | 42.22 | 42.36 | 42.50 | 42.64 | 42.78 | 42.92 | 43.06 | 0.976 |
| 0.977 | 41.40 | 41.55 | 41.69 | 41.83 | 41.98 | 42.12 | 42.26 | 42.40 | 42.55 | 42.69 | 42.83 | 42.97 | 43.11 | 0.977 |
| 0.978 | 41.45 | 41.59 | 41.74 | 41.88 | 42.02 | 42.17 | 42.31 | 42.45 | 42.59 | 42.73 | 42.87 | 43.01 | 43.15 | 0.978 |
| 0.979 | 41.49 | 41.64 | 41.78 | 41.92 | 42.07 | 42.21 | 42.35 | 42.50 | 42.64 | 42.78 | 42.92 | 43.06 | 43.20 | 0.979 |

TEMPERATURE °F Flow rate ft3/min (actual)

| Po/Pa | 76 | 80 | 84 | 88 | 92 | 96 | 100 | 104 | 108 | 112 | 116 | 120 | 124 | Po/Pa |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.930 | 40.26 | 40.39 | 40.53 | 40.66 | 40.79 | 40.93 | 41.06 | 41.19 | 41.32 | 41.45 | 41.58 | 41.71 | 41.84 | 0.930 |
| 0.931 | 40.31 | 40.44 | 40.57 | 40.71 | 40.84 | 40.97 | 41.10 | 41.23 | 41.37 | 41.50 | 41.63 | 41.76 | 41.88 | 0.931 |
| 0.932 | 40.35 | 40.49 | 40.62 | 40.75 | 40.89 | 41.02 | 41.15 | 41.28 | 41.41 | 41.54 | 41.67 | 41.80 | 41.93 | 0.932 |
| 0.933 | 40.40 | 40.53 | 40.67 | 40.80 | 40.93 | 41.06 | 41.20 | 41.33 | 41.46 | 41.59 | 41.72 | 41.85 | 41.98 | 0.933 |
| 0.934 | 40.44 | 40.58 | 40.71 | 40.84 | 40.98 | 41.11 | 41.24 | 41.37 | 41.51 | 41.64 | 41.77 | 41.90 | 42.03 | 0.934 |
| 0.935 | 40.49 | 40.62 | 40.76 | 40.89 | 41.02 | 41.16 | 41.29 | 41.42 | 41.55 | 41.68 | 41.81 | 41.94 | 42.07 | 0.935 |
| 0.936 | 40.53 | 40.67 | 40.80 | 40.94 | 41.07 | 41.20 | 41.34 | 41.47 | 41.60 | 41.73 | 41.86 | 41.99 | 42.12 | 0.936 |
| 0.937 | 40.58 | 40.71 | 40.85 | 40.98 | 41.12 | 41.25 | 41.38 | 41.51 | 41.65 | 41.78 | 41.91 | 42.04 | 42.17 | 0.937 |
| 0.938 | 40.62 | 40.76 | 40.89 | 41.03 | 41.16 | 41.30 | 41.43 | 41.56 | 41.69 | 41.82 | 41.96 | 42.09 | 42.22 | 0.938 |
| 0.939 | 40.67 | 40.81 | 40.94 | 41.08 | 41.21 | 41.34 | 41.48 | 41.61 | 41.74 | 41.87 | 42.00 | 42.13 | 42.26 | 0.939 |
| 0.940 | 40.72 | 40.85 | 40.99 | 41.12 | 41.26 | 41.39 | 41.52 | 41.65 | 41.79 | 41.92 | 42.05 | 42.18 | 42.31 | 0.940 |
| 0.941 | 40.76 | 40.90 | 41.03 | 41.17 | 41.30 | 41.44 | 41.57 | 41.70 | 41.83 | 41.97 | 42.10 | 42.23 | 42.36 | 0.941 |
| 0.942 | 40.81 | 40.94 | 41.08 | 41.21 | 41.35 | 41.48 | 41.61 | 41.75 | 41.88 | 42.01 | 42.14 | 42.28 | 42.41 | 0.942 |
| 0.943 | 40.85 | 40.99 | 41.12 | 41.26 | 41.39 | 41.53 | 41.66 | 41.79 | 41.93 | 42.06 | 42.19 | 42.32 | 42.45 | 0.943 |
| 0.944 | 40.90 | 41.03 | 41.17 | 41.31 | 41.44 | 41.57 | 41.71 | 41.84 | 41.97 | 42.11 | 42.24 | 42.37 | 42.50 | 0.944 |
| 0.945 | 40.94 | 41.08 | 41.22 | 41.35 | 41.49 | 41.62 | 41.75 | 41.89 | 42.02 | 42.15 | 42.29 | 42.42 | 42.55 | 0.945 |
| 0.946 | 40.99 | 41.13 | 41.26 | 41.40 | 41.53 | 41.67 | 41.80 | 41.93 | 42.07 | 42.20 | 42.33 | 42.46 | 42.60 | 0.946 |
| 0.947 | 41.04 | 41.17 | 41.31 | 41.44 | 41.58 | 41.71 | 41.85 | 41.98 | 42.11 | 42.25 | 42.38 | 42.51 | 42.64 | 0.947 |
| 0.948 | 41.08 | 41.22 | 41.35 | 41.49 | 41.62 | 41.76 | 41.89 | 42.03 | 42.16 | 42.29 | 42.43 | 42.56 | 42.69 | 0.948 |
| 0.949 | 41.13 | 41.26 | 41.40 | 41.54 | 41.67 | 41.81 | 41.94 | 42.07 | 42.21 | 42.34 | 42.47 | 42.61 | 42.74 | 0.949 |
| 0.950 | 41.17 | 41.31 | 41.45 | 41.58 | 41.72 | 41.85 | 41.99 | 42.12 | 42.26 | 42.39 | 42.52 | 42.65 | 42.79 | 0.950 |
| 0.951 | 41.22 | 41.35 | 41.49 | 41.63 | 41.76 | 41.90 | 42.03 | 42.17 | 42.30 | 42.44 | 42.57 | 42.70 | 42.83 | 0.951 |
| 0.952 | 41.26 | 41.40 | 41.54 | 41.67 | 41.81 | 41.95 | 42.08 | 42.21 | 42.35 | 42.48 | 42.62 | 42.75 | 42.88 | 0.952 |
| 0.953 | 41.31 | 41.45 | 41.58 | 41.72 | 41.86 | 41.99 | 42.13 | 42.26 | 42.40 | 42.53 | 42.66 | 42.80 | 42.93 | 0.953 |
| 0.954 | 41.35 | 41.49 | 41.63 | 41.77 | 41.90 | 42.04 | 42.17 | 42.31 | 42.44 | 42.58 | 42.71 | 42.84 | 42.97 | 0.954 |
| 0.955 | 41.40 | 41.54 | 41.68 | 41.81 | 41.95 | 42.08 | 42.22 | 42.35 | 42.49 | 42.62 | 42.76 | 42.89 | 43.02 | 0.955 |
| 0.956 | 41.45 | 41.58 | 41.72 | 41.86 | 41.99 | 42.13 | 42.27 | 42.40 | 42.54 | 42.67 | 42.80 | 42.94 | 43.07 | 0.956 |
| 0.957 | 41.49 | 41.63 | 41.77 | 41.90 | 42.04 | 42.18 | 42.31 | 42.45 | 42.58 | 42.72 | 42.85 | 42.98 | 43.12 | 0.957 |
| 0.958 | 41.54 | 41.68 | 41.81 | 41.95 | 42.09 | 42.22 | 42.36 | 42.49 | 42.63 | 42.76 | 42.90 | 43.03 | 43.16 | 0.958 |
| 0.959 | 41.58 | 41.72 | 41.86 | 42.00 | 42.13 | 42.27 | 42.41 | 42.54 | 42.68 | 42.81 | 42.95 | 43.08 | 43.21 | 0.959 |
| 0.960 | 41.63 | 41.77 | 41.91 | 42.04 | 42.18 | 42.32 | 42.45 | 42.59 | 42.72 | 42.86 | 42.99 | 43.13 | 43.26 | 0.960 |
| 0.961 | 41.67 | 41.81 | 41.95 | 42.09 | 42.23 | 42.36 | 42.50 | 42.63 | 42.77 | 42.91 | 43.04 | 43.17 | 43.31 | 0.961 |
| 0.962 | 41.72 | 41.86 | 42.00 | 42.13 | 42.27 | 42.41 | 42.55 | 42.68 | 42.82 | 42.95 | 43.09 | 43.22 | 43.35 | 0.962 |
| 0.963 | 41.77 | 41.90 | 42.04 | 42.18 | 42.32 | 42.46 | 42.59 | 42.73 | 42.86 | 43.00 | 43.13 | 43.27 | 43.40 | 0.963 |
| 0.964 | 41.81 | 41.95 | 42.09 | 42.23 | 42.36 | 42.50 | 42.64 | 42.78 | 42.91 | 43.05 | 43.18 | 43.32 | 43.45 | 0.964 |
| 0.965 | 41.86 | 42.00 | 42.13 | 42.27 | 42.41 | 42.55 | 42.69 | 42.82 | 42.96 | 43.09 | 43.23 | 43.36 | 43.50 | 0.965 |
| 0.966 | 41.90 | 42.04 | 42.18 | 42.32 | 42.46 | 42.59 | 42.73 | 42.87 | 43.00 | 43.14 | 43.28 | 43.41 | 43.54 | 0.966 |
| 0.967 | 41.95 | 42.09 | 42.23 | 42.37 | 42.50 | 42.64 | 42.78 | 42.92 | 43.05 | 43.19 | 43.32 | 43.46 | 43.59 | 0.967 |
| 0.968 | 41.99 | 42.13 | 42.27 | 42.41 | 42.55 | 42.69 | 42.83 | 42.96 | 43.10 | 43.23 | 43.37 | 43.50 | 43.64 | 0.968 |
| 0.969 | 42.04 | 42.18 | 42.32 | 42.46 | 42.60 | 42.73 | 42.87 | 43.01 | 43.15 | 43.28 | 43.42 | 43.55 | 43.69 | 0.969 |
| 0.970 | 42.09 | 42.23 | 42.36 | 42.50 | 42.64 | 42.78 | 42.92 | 43.06 | 43.19 | 43.33 | 43.46 | 43.60 | 43.73 | 0.970 |
| 0.971 | 42.13 | 42.27 | 42.41 | 42.55 | 42.69 | 42.83 | 42.96 | 43.10 | 43.24 | 43.38 | 43.51 | 43.65 | 43.78 | 0.971 |
| 0.972 | 42.18 | 42.32 | 42.46 | 42.60 | 42.74 | 42.87 | 43.01 | 43.15 | 43.29 | 43.42 | 43.56 | 43.69 | 43.83 | 0.972 |
| 0.973 | 42.22 | 42.36 | 42.50 | 42.64 | 42.78 | 42.92 | 43.06 | 43.20 | 43.33 | 43.47 | 43.61 | 43.74 | 43.88 | 0.973 |
| 0.974 | 42.27 | 42.41 | 42.55 | 42.69 | 42.83 | 42.97 | 43.10 | 43.24 | 43.38 | 43.52 | 43.65 | 43.79 | 43.92 | 0.974 |
| 0.975 | 42.31 | 42.45 | 42.59 | 42.73 | 42.87 | 43.01 | 43.15 | 43.29 | 43.43 | 43.56 | 43.70 | 43.84 | 43.97 | 0.975 |
| 0.976 | 42.36 | 42.50 | 42.64 | 42.78 | 42.92 | 43.06 | 43.20 | 43.34 | 43.47 | 43.61 | 43.75 | 43.88 | 44.02 | 0.976 |
| 0.977 | 42.40 | 42.55 | 42.69 | 42.83 | 42.97 | 43.11 | 43.24 | 43.38 | 43.52 | 43.66 | 43.79 | 43.93 | 44.07 | 0.977 |
| 0.978 | 42.45 | 42.59 | 42.73 | 42.87 | 43.01 | 43.15 | 43.29 | 43.43 | 43.57 | 43.70 | 43.84 | 43.98 | 44.11 | 0.978 |
| 0.979 | 42.50 | 42.64 | 42.78 | 42.92 | 43.06 | 43.20 | 43.34 | 43.48 | 43.61 | 43.75 | 43.89 | 44.03 | 44.16 | 0.979 |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

| date | Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 05/04/2019 00:00 | 05-Abr | 00:00 | 10,7 | 250 |
| 05/04/2019 01:00 | | 01:00 | 9,4 | 250 |
| 05/04/2019 02:00 | | 02:00 | 9,4 | 250 |
| 05/04/2019 03:00 | | 03:00 | 8,1 | 250 |
| 05/04/2019 04:00 | | 04:00 | 10,0 | 250 |
| 05/04/2019 05:00 | | 05:00 | 8,6 | 250 |
| 05/04/2019 06:00 | | 06:00 | 8,4 | 250 |
| 05/04/2019 07:00 | | 07:00 | 8,4 | 250 |
| 05/04/2019 08:00 | | 08:00 | 8,9 | 250 |
| 05/04/2019 09:00 | | 09:00 | 7,9 | 250 |
| 05/04/2019 10:00 | | 10:00 | 8,6 | 250 |
| 05/04/2019 11:00 | | 11:00 | 10,5 | 250 |
| 05/04/2019 12:00 | | 12:00 | 8,9 | 250 |
| 05/04/2019 13:00 | | 13:00 | 9,4 | 250 |
| 05/04/2019 14:00 | | 14:00 | 10,2 | 250 |
| 05/04/2019 15:00 | | 15:00 | 9,4 | 250 |
| 05/04/2019 16:00 | | 16:00 | 9,4 | 250 |
| 05/04/2019 17:00 | | 17:00 | 10,5 | 250 |
| 05/04/2019 18:00 | | 18:00 | 9,4 | 250 |
| 05/04/2019 19:00 | | 19:00 | 8,9 | 250 |
| 05/04/2019 20:00 | | 20:00 | 8,9 | 250 |
| 05/04/2019 21:00 | | 21:00 | 8,6 | 250 |
| 05/04/2019 22:00 | | 22:00 | 8,9 | 250 |
| 05/04/2019 23:00 | | 23:00 | 8,4 | 250 |
| 06/04/2019 00:00 | 06-Abr | 00:00 | 10,0 | 250 |
| 06/04/2019 01:00 | | 01:00 | 10,2 | 250 |
| 06/04/2019 02:00 | | 02:00 | 9,4 | 250 |
| 06/04/2019 03:00 | | 03:00 | 8,4 | 250 |
| 06/04/2019 04:00 | | 04:00 | 8,6 | 250 |
| 06/04/2019 05:00 | | 05:00 | 10,0 | 250 |
| 06/04/2019 06:00 | | 06:00 | 23,6 | 250 |
| 06/04/2019 07:00 | | 07:00 | 12,1 | 250 |
| 06/04/2019 08:00 | | 08:00 | 10,5 | 250 |
| 06/04/2019 09:00 | | 09:00 | 11,3 | 250 |
| 06/04/2019 10:00 | | 10:00 | 10,5 | 250 |
| 06/04/2019 11:00 | | 11:00 | 10,0 | 250 |
| 06/04/2019 12:00 | | 12:00 | 8,9 | 250 |
| 06/04/2019 13:00 | | 13:00 | 10,2 | 250 |
| 06/04/2019 14:00 | | 14:00 | 10,2 | 250 |
| 06/04/2019 15:00 | | 15:00 | 11,0 | 250 |
| 06/04/2019 16:00 | | 16:00 | 10,7 | 250 |
| 06/04/2019 17:00 | | 17:00 | 11,8 | 250 |
| 06/04/2019 18:00 | | 18:00 | 10,5 | 250 |
| 06/04/2019 19:00 | | 19:00 | 9,4 | 250 |
| 06/04/2019 20:00 | | 20:00 | 10,0 | 250 |
| 06/04/2019 21:00 | | 21:00 | 8,9 | 250 |
| 06/04/2019 22:00 | | 22:00 | 11,8 | 250 |
| 06/04/2019 23:00 | | 23:00 | 13,1 | 250 |
| 07/04/2019 00:00 | 07-Abr | 00:00 | 12,1 | 250 |
| 07/04/2019 01:00 | | 01:00 | 11,8 | 250 |
| 07/04/2019 02:00 | | 02:00 | 12,8 | 250 |
| 07/04/2019 03:00 | | 03:00 | 14,7 | 250 |
| 07/04/2019 04:00 | | 04:00 | 10,5 | 250 |
| 07/04/2019 05:00 | | 05:00 | 9,2 | 250 |
| 07/04/2019 06:00 | | 06:00 | 9,4 | 250 |
| 07/04/2019 07:00 | | 07:00 | 8,9 | 250 |
| 07/04/2019 08:00 | | 08:00 | 9,7 | 250 |
| 07/04/2019 09:00 | | 09:00 | 7,6 | 250 |
| 07/04/2019 10:00 | | 10:00 | 7,1 | 250 |
| 07/04/2019 11:00 | | 11:00 | 7,9 | 250 |
| 07/04/2019 12:00 | | 12:00 | 8,1 | 250 |
| 07/04/2019 13:00 | | 13:00 | 8,1 | 250 |
| 07/04/2019 14:00 | | 14:00 | 8,6 | 250 |
| 07/04/2019 15:00 | | 15:00 | 9,2 | 250 |
| 07/04/2019 16:00 | | 16:00 | 10,5 | 250 |
| 07/04/2019 17:00 | | 17:00 | 8,4 | 250 |
| 07/04/2019 18:00 | | 18:00 | 9,4 | 250 |
| 07/04/2019 19:00 | | 19:00 | 8,9 | 250 |
| 07/04/2019 20:00 | | 20:00 | 7,9 | 250 |
| 07/04/2019 21:00 | | 21:00 | 6,6 | 250 |
| 07/04/2019 22:00 | | 22:00 | 8,4 | 250 |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

| date | Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 07/04/2019 23:00 | | 23:00 | 7,6 | 250 |
| 08/04/2019 00:00 | 08-Abr | 00:00 | 13,1 | 250 |
| 08/04/2019 01:00 | | 01:00 | 9,4 | 250 |
| 08/04/2019 02:00 | | 02:00 | 7,9 | 250 |
| 08/04/2019 03:00 | | 03:00 | 19,7 | 250 |
| 08/04/2019 04:00 | | 04:00 | 10,7 | 250 |
| 08/04/2019 05:00 | | 05:00 | 9,2 | 250 |
| 08/04/2019 06:00 | | 06:00 | 15,2 | 250 |
| 08/04/2019 07:00 | | 07:00 | 11,8 | 250 |
| 08/04/2019 08:00 | | 08:00 | 10,2 | 250 |
| 08/04/2019 09:00 | | 09:00 | 11,8 | 250 |
| 08/04/2019 10:00 | | 10:00 | 8,1 | 250 |
| 08/04/2019 11:00 | | 11:00 | 9,2 | 250 |
| 08/04/2019 12:00 | | 12:00 | 7,3 | 250 |
| 08/04/2019 13:00 | | 13:00 | 7,6 | 250 |
| 08/04/2019 14:00 | | 14:00 | 7,9 | 250 |
| 08/04/2019 15:00 | | 15:00 | 9,2 | 250 |
| 08/04/2019 16:00 | | 16:00 | 9,2 | 250 |
| 08/04/2019 17:00 | | 17:00 | 9,2 | 250 |
| 08/04/2019 18:00 | | 18:00 | 8,9 | 250 |
| 08/04/2019 19:00 | | 19:00 | 8,1 | 250 |
| 08/04/2019 20:00 | | 20:00 | 8,1 | 250 |
| 08/04/2019 21:00 | | 21:00 | 8,6 | 250 |
| 08/04/2019 22:00 | | 22:00 | 8,1 | 250 |
| 08/04/2019 23:00 | | 23:00 | 7,6 | 250 |
| 09/04/2019 00:00 | 09-Abr | 00:00 | 7,3 | 250 |
| 09/04/2019 01:00 | | 01:00 | 10,7 | 250 |
| 09/04/2019 02:00 | | 02:00 | 12,3 | 250 |
| 09/04/2019 03:00 | | 03:00 | 14,4 | 250 |
| 09/04/2019 04:00 | | 04:00 | 16,2 | 250 |
| 09/04/2019 05:00 | | 05:00 | 17,0 | 250 |
| 09/04/2019 06:00 | | 06:00 | 15,5 | 250 |
| 09/04/2019 07:00 | | 07:00 | 14,4 | 250 |
| 09/04/2019 08:00 | | 08:00 | 13,1 | 250 |
| 09/04/2019 09:00 | | 09:00 | 11,5 | 250 |
| 09/04/2019 10:00 | | 10:00 | 10,5 | 250 |
| 09/04/2019 11:00 | | 11:00 | 10,0 | 250 |
| 09/04/2019 12:00 | | 12:00 | 8,9 | 250 |
| 09/04/2019 13:00 | | 13:00 | 10,0 | 250 |
| 09/04/2019 14:00 | | 14:00 | 10,2 | 250 |
| 09/04/2019 15:00 | | 15:00 | 10,2 | 250 |
| 09/04/2019 16:00 | | 16:00 | 10,7 | 250 |
| 09/04/2019 17:00 | | 17:00 | 11,0 | 250 |
| 09/04/2019 18:00 | | 18:00 | 10,2 | 250 |
| 09/04/2019 19:00 | | 19:00 | 10,0 | 250 |
| 09/04/2019 20:00 | | 20:00 | 14,7 | 250 |
| 09/04/2019 21:00 | | 21:00 | 11,0 | 250 |
| 09/04/2019 22:00 | | 22:00 | 10,0 | 250 |
| 09/04/2019 23:00 | | 23:00 | 8,6 | 250 |
| 10/04/2019 00:00 | 10-Abr | 00:00 | 8,1 | 250 |
| 10/04/2019 01:00 | | 01:00 | 8,1 | 250 |
| 10/04/2019 02:00 | | 02:00 | 7,6 | 250 |
| 10/04/2019 03:00 | | 03:00 | 6,6 | 250 |
| 10/04/2019 04:00 | | 04:00 | 7,9 | 250 |
| 10/04/2019 05:00 | | 05:00 | 7,9 | 250 |
| 10/04/2019 06:00 | | 06:00 | 7,6 | 250 |
| 10/04/2019 07:00 | | 07:00 | 8,4 | 250 |
| 10/04/2019 08:00 | | 08:00 | 10,7 | 250 |
| 10/04/2019 09:00 | | 09:00 | 9,4 | 250 |
| 10/04/2019 10:00 | | 10:00 | 7,3 | 250 |
| 10/04/2019 11:00 | | 11:00 | 6,8 | 250 |
| 10/04/2019 12:00 | | 12:00 | 7,1 | 250 |
| 10/04/2019 13:00 | | 13:00 | 7,6 | 250 |
| 10/04/2019 14:00 | | 14:00 | 8,6 | 250 |
| 10/04/2019 15:00 | | 15:00 | 7,6 | 250 |
| 10/04/2019 16:00 | | 16:00 | 8,1 | 250 |
| 10/04/2019 17:00 | | 17:00 | 9,2 | 250 |
| 10/04/2019 18:00 | | 18:00 | 8,4 | 250 |
| 10/04/2019 19:00 | | 19:00 | 7,1 | 250 |
| 10/04/2019 20:00 | | 20:00 | 6,6 | 250 |
| 10/04/2019 21:00 | 21:00 | 6,8 | 250 | |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

| date | Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 10/04/2019 22:00 | | 22:00 | 8,6 | 250 |
| 10/04/2019 23:00 | | 23:00 | 8,4 | 250 |
| 11/04/2019 00:00 | 11-Abr | 00:00 | 7,6 | 250 |
| 11/04/2019 01:00 | | 01:00 | 7,9 | 250 |
| 11/04/2019 02:00 | | 02:00 | 8,1 | 250 |
| 11/04/2019 03:00 | | 03:00 | 6,6 | 250 |
| 11/04/2019 04:00 | | 04:00 | 6,6 | 250 |
| 11/04/2019 05:00 | | 05:00 | 7,6 | 250 |
| 11/04/2019 06:00 | | 06:00 | 7,3 | 250 |
| 11/04/2019 07:00 | | 07:00 | 8,6 | 250 |
| 11/04/2019 08:00 | | 08:00 | 10,5 | 250 |
| 11/04/2019 09:00 | | 09:00 | 10,0 | 250 |
| 11/04/2019 10:00 | | 10:00 | 8,1 | 250 |
| 11/04/2019 11:00 | | 11:00 | 8,1 | 250 |
| 11/04/2019 12:00 | | 12:00 | 7,6 | 250 |
| 11/04/2019 13:00 | | 13:00 | 7,1 | 250 |
| 11/04/2019 14:00 | | 14:00 | 7,9 | 250 |
| 11/04/2019 15:00 | | 15:00 | 8,4 | 250 |
| 11/04/2019 16:00 | | 16:00 | 8,4 | 250 |
| 11/04/2019 17:00 | | 17:00 | 9,4 | 250 |
| 11/04/2019 18:00 | | 18:00 | 10,0 | 250 |
| 11/04/2019 19:00 | | 19:00 | 8,9 | 250 |
| 11/04/2019 20:00 | | 20:00 | 7,9 | 250 |
| 11/04/2019 21:00 | | 21:00 | 11,3 | 250 |
| 11/04/2019 22:00 | | 22:00 | 8,4 | 250 |
| 11/04/2019 23:00 | 23:00 | 21,7 | 250 | |
| 12/04/2019 00:00 | 12-Abr | 00:00 | 12,8 | 250 |
| 12/04/2019 01:00 | | 01:00 | 8,9 | 250 |
| 12/04/2019 02:00 | | 02:00 | 8,1 | 250 |
| 12/04/2019 03:00 | | 03:00 | 8,4 | 250 |
| 12/04/2019 04:00 | | 04:00 | 10,0 | 250 |
| 12/04/2019 05:00 | | 05:00 | 8,6 | 250 |
| 12/04/2019 06:00 | | 06:00 | 8,1 | 250 |
| 12/04/2019 07:00 | | 07:00 | 17,8 | 250 |
| 12/04/2019 08:00 | | 08:00 | 12,8 | 250 |
| 12/04/2019 09:00 | | 09:00 | 10,2 | 250 |
| 12/04/2019 10:00 | | 10:00 | 7,1 | 250 |
| 12/04/2019 11:00 | | 11:00 | 7,3 | 250 |
| 12/04/2019 12:00 | | 12:00 | 7,1 | 250 |
| 12/04/2019 13:00 | | 13:00 | 7,3 | 250 |
| 12/04/2019 14:00 | | 14:00 | 7,6 | 250 |
| 12/04/2019 15:00 | | 15:00 | 8,1 | 250 |
| 12/04/2019 16:00 | | 16:00 | 8,6 | 250 |
| 12/04/2019 17:00 | | 17:00 | 9,2 | 250 |
| 12/04/2019 18:00 | | 18:00 | 8,1 | 250 |
| 12/04/2019 19:00 | | 19:00 | 8,1 | 250 |
| 12/04/2019 20:00 | | 20:00 | 7,6 | 250 |
| 12/04/2019 21:00 | | 21:00 | 7,3 | 250 |
| 12/04/2019 22:00 | | 22:00 | 7,6 | 250 |
| 12/04/2019 23:00 | 23:00 | 6,8 | 250 | |
| 13/04/2019 00:00 | 13-Abr | 00:00 | 8,6 | 250 |
| 13/04/2019 01:00 | | 01:00 | 10,0 | 250 |
| 13/04/2019 02:00 | | 02:00 | 9,4 | 250 |
| 13/04/2019 03:00 | | 03:00 | 48,2 | 250 |
| 13/04/2019 04:00 | | 04:00 | 20,2 | 250 |
| 13/04/2019 05:00 | | 05:00 | 10,0 | 250 |
| 13/04/2019 06:00 | | 06:00 | 6,6 | 250 |
| 13/04/2019 07:00 | | 07:00 | 7,9 | 250 |
| 13/04/2019 08:00 | | 08:00 | 7,6 | 250 |
| 13/04/2019 09:00 | | 09:00 | 9,2 | 250 |
| 13/04/2019 10:00 | | 10:00 | 7,3 | 250 |
| 13/04/2019 11:00 | | 11:00 | 8,9 | 250 |
| 13/04/2019 12:00 | | 12:00 | 7,3 | 250 |
| 13/04/2019 13:00 | | 13:00 | 7,9 | 250 |
| 13/04/2019 14:00 | | 14:00 | 6,8 | 250 |
| 13/04/2019 15:00 | | 15:00 | 9,2 | 250 |
| 13/04/2019 16:00 | | 16:00 | 9,4 | 250 |
| 13/04/2019 17:00 | | 17:00 | 8,9 | 250 |
| 13/04/2019 18:00 | | 18:00 | 8,4 | 250 |
| 13/04/2019 19:00 | | 19:00 | 6,6 | 250 |
| 13/04/2019 20:00 | 20:00 | 8,1 | 250 | |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

| date | Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 13/04/2019 21:00 | | 21:00 | 7,1 | 250 |
| 13/04/2019 22:00 | | 22:00 | 6,6 | 250 |
| 13/04/2019 23:00 | | 23:00 | 7,3 | 250 |
| 14/04/2019 00:00 | 14-Abr | 00:00 | 6,0 | 250 |
| 14/04/2019 01:00 | | 01:00 | 6,0 | 250 |
| 14/04/2019 02:00 | | 02:00 | 7,1 | 250 |
| 14/04/2019 03:00 | | 03:00 | 7,6 | 250 |
| 14/04/2019 04:00 | | 04:00 | 7,3 | 250 |
| 14/04/2019 05:00 | | 05:00 | 8,1 | 250 |
| 14/04/2019 06:00 | | 06:00 | 8,6 | 250 |
| 14/04/2019 07:00 | | 07:00 | 7,1 | 250 |
| 14/04/2019 08:00 | | 08:00 | 7,9 | 250 |
| 14/04/2019 09:00 | | 09:00 | 8,4 | 250 |
| 14/04/2019 10:00 | | 10:00 | 6,8 | 250 |
| 14/04/2019 11:00 | | 11:00 | 7,9 | 250 |
| 14/04/2019 12:00 | | 12:00 | 8,4 | 250 |
| 14/04/2019 13:00 | | 13:00 | 6,8 | 250 |
| 14/04/2019 14:00 | | 14:00 | 7,6 | 250 |
| 14/04/2019 15:00 | | 15:00 | 8,6 | 250 |
| 14/04/2019 16:00 | | 16:00 | 9,4 | 250 |
| 14/04/2019 17:00 | | 17:00 | 10,5 | 250 |
| 14/04/2019 18:00 | | 18:00 | 7,6 | 250 |
| 14/04/2019 19:00 | | 19:00 | 6,0 | 250 |
| 14/04/2019 20:00 | | 20:00 | 6,6 | 250 |
| 14/04/2019 21:00 | | 21:00 | 5,5 | 250 |
| 14/04/2019 22:00 | | 22:00 | 6,8 | 250 |
| 14/04/2019 23:00 | 23:00 | 5,8 | 250 | |
| 15/04/2019 00:00 | 15-Abr | 00:00 | 7,3 | 250 |
| 15/04/2019 01:00 | | 01:00 | 5,8 | 250 |
| 15/04/2019 02:00 | | 02:00 | 6,3 | 250 |
| 15/04/2019 03:00 | | 03:00 | 5,5 | 250 |
| 15/04/2019 04:00 | | 04:00 | 6,0 | 250 |
| 15/04/2019 05:00 | | 05:00 | 6,3 | 250 |
| 15/04/2019 06:00 | | 06:00 | 5,2 | 250 |
| 15/04/2019 07:00 | | 07:00 | 6,6 | 250 |
| 15/04/2019 08:00 | | 08:00 | 11,8 | 250 |
| 15/04/2019 09:00 | | 09:00 | 7,9 | 250 |
| 15/04/2019 10:00 | | 10:00 | 7,1 | 250 |
| 15/04/2019 11:00 | | 11:00 | 6,8 | 250 |
| 15/04/2019 12:00 | | 12:00 | 7,9 | 250 |
| 15/04/2019 13:00 | | 13:00 | 8,1 | 250 |
| 15/04/2019 14:00 | | 14:00 | 7,6 | 250 |
| 15/04/2019 15:00 | | 15:00 | 9,4 | 250 |
| 15/04/2019 16:00 | | 16:00 | 9,2 | 250 |
| 15/04/2019 17:00 | | 17:00 | 9,2 | 250 |
| 15/04/2019 18:00 | | 18:00 | 8,6 | 250 |
| 15/04/2019 19:00 | | 19:00 | 8,4 | 250 |
| 15/04/2019 20:00 | | 20:00 | 8,1 | 250 |
| 15/04/2019 21:00 | | 21:00 | 7,6 | 250 |
| 15/04/2019 22:00 | | 22:00 | 6,8 | 250 |
| 15/04/2019 23:00 | 23:00 | 11,8 | 250 | |
| 16/04/2019 00:00 | 16-Abr | 00:00 | 8,9 | 250 |
| 16/04/2019 01:00 | | 01:00 | 8,1 | 250 |
| 16/04/2019 02:00 | | 02:00 | 18,6 | 250 |
| 16/04/2019 03:00 | | 03:00 | 7,9 | 250 |
| 16/04/2019 04:00 | | 04:00 | 36,7 | 250 |
| 16/04/2019 05:00 | | 05:00 | 15,5 | 250 |
| 16/04/2019 06:00 | | 06:00 | 9,7 | 250 |
| 16/04/2019 07:00 | | 07:00 | 11,8 | 250 |
| 16/04/2019 08:00 | | 08:00 | 12,8 | 250 |
| 16/04/2019 09:00 | | 09:00 | 9,4 | 250 |
| 16/04/2019 10:00 | | 10:00 | 8,9 | 250 |
| 16/04/2019 11:00 | | 11:00 | 7,1 | 250 |
| 16/04/2019 12:00 | | 12:00 | 8,1 | 250 |
| 16/04/2019 13:00 | | 13:00 | 9,2 | 250 |
| 16/04/2019 14:00 | | 14:00 | 7,9 | 250 |
| 16/04/2019 15:00 | | 15:00 | 6,3 | 250 |
| 16/04/2019 16:00 | | 16:00 | 7,1 | 250 |
| 16/04/2019 17:00 | | 17:00 | 8,9 | 250 |
| 16/04/2019 18:00 | | 18:00 | 8,9 | 250 |
| 16/04/2019 19:00 | 19:00 | 8,4 | 250 | |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

| date | Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 16/04/2019 20:00 | | 20:00 | 8,1 | 250 |
| 16/04/2019 21:00 | | 21:00 | 7,9 | 250 |
| 16/04/2019 22:00 | | 22:00 | 9,2 | 250 |
| 16/04/2019 23:00 | | 23:00 | 35,6 | 250 |
| 17/04/2019 00:00 | 17-Abr | 00:00 | 11,0 | 250 |
| 17/04/2019 01:00 | | 01:00 | 11,0 | 250 |
| 17/04/2019 02:00 | | 02:00 | 8,1 | 250 |
| 17/04/2019 03:00 | | 03:00 | 6,0 | 250 |
| 17/04/2019 04:00 | | 04:00 | 8,6 | 250 |
| 17/04/2019 05:00 | | 05:00 | 11,5 | 250 |
| 17/04/2019 06:00 | | 06:00 | 8,6 | 250 |
| 17/04/2019 07:00 | | 07:00 | 7,6 | 250 |
| 17/04/2019 08:00 | | 08:00 | 13,9 | 250 |
| 17/04/2019 09:00 | | 09:00 | 10,5 | 250 |
| 17/04/2019 10:00 | | 10:00 | 6,8 | 250 |
| 17/04/2019 11:00 | | 11:00 | 6,0 | 250 |
| 17/04/2019 12:00 | | 12:00 | 5,5 | 250 |
| 17/04/2019 13:00 | | 13:00 | 3,7 | 250 |
| 17/04/2019 14:00 | | 14:00 | 5,2 | 250 |
| 17/04/2019 15:00 | | 15:00 | 4,5 | 250 |
| 17/04/2019 16:00 | | 16:00 | 5,0 | 250 |
| 17/04/2019 17:00 | | 17:00 | 4,7 | 250 |
| 17/04/2019 18:00 | | 18:00 | 3,9 | 250 |
| 17/04/2019 19:00 | | 19:00 | 4,7 | 250 |
| 17/04/2019 20:00 | | 20:00 | 5,0 | 250 |
| 17/04/2019 21:00 | | 21:00 | 5,5 | 250 |
| 17/04/2019 22:00 | | 22:00 | 5,8 | 250 |
| 17/04/2019 23:00 | 23:00 | 4,7 | 250 | |
| 18/04/2019 00:00 | 18-Abr | 00:00 | 6,3 | 250 |
| 18/04/2019 01:00 | | 01:00 | 7,3 | 250 |
| 18/04/2019 02:00 | | 02:00 | 29,1 | 250 |
| 18/04/2019 03:00 | | 03:00 | 13,1 | 250 |
| 18/04/2019 04:00 | | 04:00 | 6,3 | 250 |
| 18/04/2019 05:00 | | 05:00 | 6,8 | 250 |
| 18/04/2019 06:00 | | 06:00 | 8,4 | 250 |
| 18/04/2019 07:00 | | 07:00 | 8,1 | 250 |
| 18/04/2019 08:00 | | 08:00 | 12,8 | 250 |
| 18/04/2019 09:00 | | 09:00 | 8,6 | 250 |
| 18/04/2019 10:00 | | 10:00 | 5,8 | 250 |
| 18/04/2019 11:00 | | 11:00 | 5,8 | 250 |
| 18/04/2019 12:00 | | 12:00 | 4,2 | 250 |
| 18/04/2019 13:00 | | 13:00 | 4,2 | 250 |
| 18/04/2019 14:00 | | 14:00 | 6,6 | 250 |
| 18/04/2019 15:00 | | 15:00 | 6,3 | 250 |
| 18/04/2019 16:00 | | 16:00 | 5,2 | 250 |
| 18/04/2019 17:00 | | 17:00 | 5,5 | 250 |
| 18/04/2019 18:00 | | 18:00 | 4,2 | 250 |
| 18/04/2019 19:00 | | 19:00 | 5,8 | 250 |
| 18/04/2019 20:00 | | 20:00 | 5,8 | 250 |
| 18/04/2019 21:00 | | 21:00 | 6,8 | 250 |
| 18/04/2019 22:00 | | 22:00 | 3,9 | 250 |
| 18/04/2019 23:00 | 23:00 | 4,7 | 250 | |
| 19/04/2019 00:00 | 19-Abr | 00:00 | 6,6 | 250 |
| 19/04/2019 01:00 | | 01:00 | 7,3 | 250 |
| 19/04/2019 02:00 | | 02:00 | 6,3 | 250 |
| 19/04/2019 03:00 | | 03:00 | 5,0 | 250 |
| 19/04/2019 04:00 | | 04:00 | 4,5 | 250 |
| 19/04/2019 05:00 | | 05:00 | 5,2 | 250 |
| 19/04/2019 06:00 | | 06:00 | 5,5 | 250 |
| 19/04/2019 07:00 | | 07:00 | 5,0 | 250 |
| 19/04/2019 08:00 | | 08:00 | 6,8 | 250 |
| 19/04/2019 09:00 | | 09:00 | 7,1 | 250 |
| 19/04/2019 10:00 | | 10:00 | 4,5 | 250 |
| 19/04/2019 11:00 | | 11:00 | 5,0 | 250 |
| 19/04/2019 12:00 | | 12:00 | 4,7 | 250 |
| 19/04/2019 13:00 | | 13:00 | 6,0 | 250 |
| 19/04/2019 14:00 | | 14:00 | 5,2 | 250 |
| 19/04/2019 15:00 | | 15:00 | 5,2 | 250 |
| 19/04/2019 16:00 | | 16:00 | 6,0 | 250 |
| 19/04/2019 17:00 | | 17:00 | 6,6 | 250 |
| 19/04/2019 18:00 | 18:00 | 5,5 | 250 | |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

| date | Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 19/04/2019 19:00 | | 19:00 | 3,4 | 250 |
| 19/04/2019 20:00 | | 20:00 | 3,9 | 250 |
| 19/04/2019 21:00 | | 21:00 | 4,7 | 250 |
| 19/04/2019 22:00 | | 22:00 | 5,0 | 250 |
| 19/04/2019 23:00 | | 23:00 | 5,5 | 250 |
| 20/04/2019 00:00 | 20-Abr | 00:00 | 4,2 | 250 |
| 20/04/2019 01:00 | | 01:00 | 3,4 | 250 |
| 20/04/2019 02:00 | | 02:00 | 4,2 | 250 |
| 20/04/2019 03:00 | | 03:00 | 5,2 | 250 |
| 20/04/2019 04:00 | | 04:00 | 4,2 | 250 |
| 20/04/2019 05:00 | | 05:00 | 5,8 | 250 |
| 20/04/2019 06:00 | | 06:00 | 5,0 | 250 |
| 20/04/2019 07:00 | | 07:00 | 4,5 | 250 |
| 20/04/2019 08:00 | | 08:00 | 4,5 | 250 |
| 20/04/2019 09:00 | | 09:00 | 5,2 | 250 |
| 20/04/2019 10:00 | | 10:00 | 4,7 | 250 |
| 20/04/2019 11:00 | | 11:00 | 4,2 | 250 |
| 20/04/2019 12:00 | | 12:00 | 5,8 | 250 |
| 20/04/2019 13:00 | | 13:00 | 5,0 | 250 |
| 20/04/2019 14:00 | | 14:00 | 5,0 | 250 |
| 20/04/2019 15:00 | | 15:00 | 5,0 | 250 |
| 20/04/2019 16:00 | | 16:00 | 6,0 | 250 |
| 20/04/2019 17:00 | | 17:00 | 6,6 | 250 |
| 20/04/2019 18:00 | | 18:00 | 5,8 | 250 |
| 20/04/2019 19:00 | | 19:00 | 5,8 | 250 |
| 20/04/2019 20:00 | | 20:00 | 5,0 | 250 |
| 20/04/2019 21:00 | | 21:00 | 4,5 | 250 |
| 20/04/2019 22:00 | | 22:00 | 3,9 | 250 |
| 20/04/2019 23:00 | 23:00 | 3,1 | 250 | |
| 21/04/2019 00:00 | 21-Abr | 00:00 | 5,5 | 250 |
| 21/04/2019 01:00 | | 01:00 | 11,0 | 250 |
| 21/04/2019 02:00 | | 02:00 | 5,2 | 250 |
| 21/04/2019 03:00 | | 03:00 | 4,7 | 250 |
| 21/04/2019 04:00 | | 04:00 | 5,0 | 250 |
| 21/04/2019 05:00 | | 05:00 | 6,0 | 250 |
| 21/04/2019 06:00 | | 06:00 | 4,5 | 250 |
| 21/04/2019 07:00 | | 07:00 | 10,7 | 250 |
| 21/04/2019 08:00 | | 08:00 | 9,2 | 250 |
| 21/04/2019 09:00 | | 09:00 | 7,6 | 250 |
| 21/04/2019 10:00 | | 10:00 | 6,3 | 250 |
| 21/04/2019 11:00 | | 11:00 | 4,5 | 250 |
| 21/04/2019 12:00 | | 12:00 | 4,7 | 250 |
| 21/04/2019 13:00 | | 13:00 | 5,2 | 250 |
| 21/04/2019 14:00 | | 14:00 | 5,0 | 250 |
| 21/04/2019 15:00 | | 15:00 | 4,5 | 250 |
| 21/04/2019 16:00 | | 16:00 | 5,2 | 250 |
| 21/04/2019 17:00 | | 17:00 | 5,8 | 250 |
| 21/04/2019 18:00 | | 18:00 | 5,8 | 250 |
| 21/04/2019 19:00 | | 19:00 | 3,9 | 250 |
| 21/04/2019 20:00 | | 20:00 | 4,5 | 250 |
| 21/04/2019 21:00 | | 21:00 | 3,9 | 250 |
| 21/04/2019 22:00 | | 22:00 | 7,3 | 250 |
| 21/04/2019 23:00 | 23:00 | 2,9 | 250 | |
| 22/04/2019 00:00 | 22-Abr | 00:00 | 2,1 | 250 |
| 22/04/2019 01:00 | | 01:00 | 4,2 | 250 |
| 22/04/2019 02:00 | | 02:00 | 4,7 | 250 |
| 22/04/2019 03:00 | | 03:00 | 5,5 | 250 |
| 22/04/2019 04:00 | | 04:00 | 5,5 | 250 |
| 22/04/2019 05:00 | | 05:00 | 3,9 | 250 |
| 22/04/2019 06:00 | | 06:00 | 3,7 | 250 |
| 22/04/2019 07:00 | | 07:00 | 4,7 | 250 |
| 22/04/2019 08:00 | | 08:00 | 4,5 | 250 |
| 22/04/2019 09:00 | | 09:00 | 4,5 | 250 |
| 22/04/2019 10:00 | | 10:00 | 5,5 | 250 |
| 22/04/2019 11:00 | | 11:00 | 3,4 | 250 |
| 22/04/2019 12:00 | | 12:00 | 3,7 | 250 |
| 22/04/2019 13:00 | | 13:00 | 5,0 | 250 |
| 22/04/2019 14:00 | | 14:00 | 4,7 | 250 |
| 22/04/2019 15:00 | | 15:00 | 4,5 | 250 |
| 22/04/2019 16:00 | | 16:00 | 4,7 | 250 |
| 22/04/2019 17:00 | 17:00 | 5,8 | 250 | |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

| date | Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 22/04/2019 18:00 | | 18:00 | 5,5 | 250 |
| 22/04/2019 19:00 | | 19:00 | 3,7 | 250 |
| 22/04/2019 20:00 | | 20:00 | 3,9 | 250 |
| 22/04/2019 21:00 | | 21:00 | 3,9 | 250 |
| 22/04/2019 22:00 | | 22:00 | 24,9 | 250 |
| 22/04/2019 23:00 | | 23:00 | 6,0 | 250 |
| 23/04/2019 00:00 | 23-Abr | 00:00 | 5,8 | 250 |
| 23/04/2019 01:00 | | 01:00 | 13,6 | 250 |
| 23/04/2019 02:00 | | 02:00 | 3,4 | 250 |
| 23/04/2019 03:00 | | 03:00 | 0,3 | 250 |
| 23/04/2019 04:00 | | 04:00 | 1,3 | 250 |
| 23/04/2019 05:00 | | 05:00 | 1,8 | 250 |
| 23/04/2019 06:00 | | 06:00 | 2,4 | 250 |
| 23/04/2019 07:00 | | 07:00 | 1,6 | 250 |
| 23/04/2019 08:00 | | 08:00 | 4,2 | 250 |
| 23/04/2019 09:00 | | 09:00 | 2,1 | 250 |
| 23/04/2019 10:00 | | 10:00 | 5,2 | 250 |
| 23/04/2019 11:00 | | 11:00 | 5,5 | 250 |
| 23/04/2019 12:00 | | 12:00 | 7,6 | 250 |
| 23/04/2019 13:00 | | 13:00 | 6,3 | 250 |
| 23/04/2019 14:00 | | 14:00 | 5,5 | 250 |
| 23/04/2019 15:00 | | 15:00 | 5,8 | 250 |
| 23/04/2019 16:00 | | 16:00 | 6,6 | 250 |
| 23/04/2019 17:00 | | 17:00 | 4,7 | 250 |
| 23/04/2019 18:00 | | 18:00 | 5,2 | 250 |
| 23/04/2019 19:00 | | 19:00 | 3,7 | 250 |
| 23/04/2019 20:00 | | 20:00 | 3,1 | 250 |
| 23/04/2019 21:00 | | 21:00 | 2,6 | 250 |
| 23/04/2019 22:00 | | 22:00 | 4,2 | 250 |
| 23/04/2019 23:00 | 23:00 | 6,3 | 250 | |
| 24/04/2019 00:00 | 24-Abr | 00:00 | 7,1 | 250 |
| 24/04/2019 01:00 | | 01:00 | 8,6 | 250 |
| 24/04/2019 02:00 | | 02:00 | 3,1 | 250 |
| 24/04/2019 03:00 | | 03:00 | 1,3 | 250 |
| 24/04/2019 04:00 | | 04:00 | 2,9 | 250 |
| 24/04/2019 05:00 | | 05:00 | 4,5 | 250 |
| 24/04/2019 06:00 | | 06:00 | 2,1 | 250 |
| 24/04/2019 07:00 | | 07:00 | 4,7 | 250 |
| 24/04/2019 08:00 | | 08:00 | 8,4 | 250 |
| 24/04/2019 09:00 | | 09:00 | 5,8 | 250 |
| 24/04/2019 10:00 | | 10:00 | 3,7 | 250 |
| 24/04/2019 11:00 | | 11:00 | 2,9 | 250 |
| 24/04/2019 12:00 | | 12:00 | 1,3 | 250 |
| 24/04/2019 13:00 | | 13:00 | 0,8 | 250 |
| 24/04/2019 14:00 | | 14:00 | 0,8 | 250 |
| 24/04/2019 15:00 | | 15:00 | 1,6 | 250 |
| 24/04/2019 16:00 | | 16:00 | 2,1 | 250 |
| 24/04/2019 17:00 | | 17:00 | 2,9 | 250 |
| 24/04/2019 18:00 | | 18:00 | 2,1 | 250 |
| 24/04/2019 19:00 | | 19:00 | 2,4 | 250 |
| 24/04/2019 20:00 | | 20:00 | 4,2 | 250 |
| 24/04/2019 21:00 | | 21:00 | 1,0 | 250 |
| 24/04/2019 22:00 | | 22:00 | 1,0 | 250 |
| 24/04/2019 23:00 | 23:00 | 1,6 | 250 | |
| 25/04/2019 00:00 | 25-Abr | 00:00 | 1,6 | 250 |
| 25/04/2019 01:00 | | 01:00 | 39,0 | 250 |
| 25/04/2019 02:00 | | 02:00 | 9,4 | 250 |
| 25/04/2019 03:00 | | 03:00 | 5,2 | 250 |
| 25/04/2019 04:00 | | 04:00 | 3,7 | 250 |
| 25/04/2019 05:00 | | 05:00 | 3,4 | 250 |
| 25/04/2019 06:00 | | 06:00 | 2,6 | 250 |
| 25/04/2019 07:00 | | 07:00 | 3,4 | 250 |
| 25/04/2019 08:00 | | 08:00 | 0,8 | 250 |
| 25/04/2019 09:00 | | 09:00 | 1,6 | 250 |
| 25/04/2019 10:00 | | 10:00 | 1,8 | 250 |
| 25/04/2019 11:00 | | 11:00 | 1,6 | 250 |
| 25/04/2019 12:00 | | 12:00 | 1,6 | 250 |
| 25/04/2019 13:00 | | 13:00 | 1,3 | 250 |
| 25/04/2019 14:00 | | 14:00 | 0,8 | 250 |
| 25/04/2019 15:00 | | 15:00 | 0,3 | 250 |
| 25/04/2019 16:00 | 16:00 | 2,6 | 250 | |

Concentraciones horarias del dióxido de azufre (SO2) en la Estación CA-VMP-2

date
 25/04/2019 17:00
 25/04/2019 18:00
 25/04/2019 19:00
 25/04/2019 20:00
 25/04/2019 21:00
 25/04/2019 22:00
 25/04/2019 23:00

| Fecha | Horas | SO2_ugm3 | ECA SO2 - 24 horas (250 µg/m ³) |
|-------|-------|----------|---|
| | 17:00 | 3,1 | 250 |
| | 18:00 | 3,7 | 250 |
| | 19:00 | 4,5 | 250 |
| | 20:00 | 4,2 | 250 |
| | 21:00 | 6,3 | 250 |
| | 22:00 | 24,6 | 250 |
| | 23:00 | 9,7 | 250 |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date | Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 05/04/2019 00:00 | 05-Abr | 00:00 | 30,2 | 150 |
| 05/04/2019 01:00 | | 01:00 | 13,9 | 150 |
| 05/04/2019 02:00 | | 02:00 | 10,3 | 150 |
| 05/04/2019 03:00 | | 03:00 | 10,6 | 150 |
| 05/04/2019 04:00 | | 04:00 | 57,3 | 150 |
| 05/04/2019 05:00 | | 05:00 | 14,6 | 150 |
| 05/04/2019 06:00 | | 06:00 | 12,9 | 150 |
| 05/04/2019 07:00 | | 07:00 | 11,8 | 150 |
| 05/04/2019 08:00 | | 08:00 | 11,3 | 150 |
| 05/04/2019 09:00 | | 09:00 | 12,2 | 150 |
| 05/04/2019 10:00 | | 10:00 | 15,6 | 150 |
| 05/04/2019 11:00 | | 11:00 | 9,9 | 150 |
| 05/04/2019 12:00 | | 12:00 | 10,0 | 150 |
| 05/04/2019 13:00 | | 13:00 | 11,0 | 150 |
| 05/04/2019 14:00 | | 14:00 | 11,7 | 150 |
| 05/04/2019 15:00 | | 15:00 | 12,2 | 150 |
| 05/04/2019 16:00 | | 16:00 | 12,8 | 150 |
| 05/04/2019 17:00 | | 17:00 | 11,5 | 150 |
| 05/04/2019 18:00 | | 18:00 | 14,3 | 150 |
| 05/04/2019 19:00 | | 19:00 | 21,5 | 150 |
| 05/04/2019 20:00 | | 20:00 | 18,8 | 150 |
| 05/04/2019 21:00 | | 21:00 | 17,8 | 150 |
| 05/04/2019 22:00 | | 22:00 | 23,4 | 150 |
| 05/04/2019 23:00 | | 23:00 | 17,1 | 150 |
| 06/04/2019 00:00 | 06-Abr | 00:00 | 11,3 | 150 |
| 06/04/2019 01:00 | | 01:00 | 17,9 | 150 |
| 06/04/2019 02:00 | | 02:00 | 13,2 | 150 |
| 06/04/2019 03:00 | | 03:00 | 12,2 | 150 |
| 06/04/2019 04:00 | | 04:00 | 12,6 | 150 |
| 06/04/2019 05:00 | | 05:00 | 21,4 | 150 |
| 06/04/2019 06:00 | | 06:00 | 22,2 | 150 |
| 06/04/2019 07:00 | | 07:00 | 35,7 | 150 |
| 06/04/2019 08:00 | | 08:00 | 37,1 | 150 |
| 06/04/2019 09:00 | | 09:00 | 22,4 | 150 |
| 06/04/2019 10:00 | | 10:00 | 20,4 | 150 |
| 06/04/2019 11:00 | | 11:00 | 15,8 | 150 |
| 06/04/2019 12:00 | | 12:00 | 10,8 | 150 |
| 06/04/2019 13:00 | | 13:00 | 9,6 | 150 |
| 06/04/2019 14:00 | | 14:00 | 10,7 | 150 |
| 06/04/2019 15:00 | | 15:00 | 10,8 | 150 |
| 06/04/2019 16:00 | | 16:00 | 16,0 | 150 |
| 06/04/2019 17:00 | | 17:00 | 16,8 | 150 |
| 06/04/2019 18:00 | | 18:00 | 19,3 | 150 |
| 06/04/2019 19:00 | | 19:00 | 21,8 | 150 |
| 06/04/2019 20:00 | | 20:00 | 21,3 | 150 |
| 06/04/2019 21:00 | | 21:00 | 18,1 | 150 |
| 06/04/2019 22:00 | | 22:00 | 60,5 | 150 |
| 06/04/2019 23:00 | | 23:00 | 54,5 | 150 |
| 07/04/2019 00:00 | 07-Abr | 00:00 | 44,9 | 150 |
| 07/04/2019 01:00 | | 01:00 | 88,7 | 150 |
| 07/04/2019 02:00 | | 02:00 | 106,5 | 150 |
| 07/04/2019 03:00 | | 03:00 | 113,8 | 150 |
| 07/04/2019 04:00 | | 04:00 | 32,1 | 150 |
| 07/04/2019 05:00 | | 05:00 | 32,7 | 150 |
| 07/04/2019 06:00 | | 06:00 | 29,1 | 150 |
| 07/04/2019 07:00 | | 07:00 | 12,2 | 150 |
| 07/04/2019 08:00 | | 08:00 | 22,1 | 150 |
| 07/04/2019 09:00 | | 09:00 | 12,5 | 150 |
| 07/04/2019 10:00 | | 10:00 | 10,7 | 150 |
| 07/04/2019 11:00 | | 11:00 | 12,9 | 150 |
| 07/04/2019 12:00 | | 12:00 | 23,2 | 150 |
| 07/04/2019 13:00 | | 13:00 | 27,4 | 150 |
| 07/04/2019 14:00 | | 14:00 | 21,0 | 150 |
| 07/04/2019 15:00 | | 15:00 | 14,5 | 150 |
| 07/04/2019 16:00 | | 16:00 | 12,8 | 150 |
| 07/04/2019 17:00 | | 17:00 | 13,3 | 150 |
| 07/04/2019 18:00 | | 18:00 | 10,3 | 150 |
| 07/04/2019 19:00 | | 19:00 | 15,4 | 150 |
| 07/04/2019 20:00 | | 20:00 | 18,8 | 150 |
| 07/04/2019 21:00 | | 21:00 | 17,5 | 150 |
| 07/04/2019 22:00 | | 22:00 | 19,9 | 150 |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date | Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 07/04/2019 23:00 | | 23:00 | 15,7 | 150 |
| 08/04/2019 00:00 | 08-Abr | 00:00 | 11,5 | 150 |
| 08/04/2019 01:00 | | 01:00 | 45,5 | 150 |
| 08/04/2019 02:00 | | 02:00 | 15,4 | 150 |
| 08/04/2019 03:00 | | 03:00 | 40,9 | 150 |
| 08/04/2019 04:00 | | 04:00 | 65,9 | 150 |
| 08/04/2019 05:00 | | 05:00 | 44,3 | 150 |
| 08/04/2019 06:00 | | 06:00 | 44,8 | 150 |
| 08/04/2019 07:00 | | 07:00 | 53,4 | 150 |
| 08/04/2019 08:00 | | 08:00 | 51,2 | 150 |
| 08/04/2019 09:00 | | 09:00 | 31,1 | 150 |
| 08/04/2019 10:00 | | 10:00 | 20,0 | 150 |
| 08/04/2019 11:00 | | 11:00 | 15,0 | 150 |
| 08/04/2019 12:00 | | 12:00 | 12,0 | 150 |
| 08/04/2019 13:00 | | 13:00 | 13,3 | 150 |
| 08/04/2019 14:00 | | 14:00 | 13,5 | 150 |
| 08/04/2019 15:00 | | 15:00 | 12,4 | 150 |
| 08/04/2019 16:00 | | 16:00 | 12,2 | 150 |
| 08/04/2019 17:00 | | 17:00 | 11,7 | 150 |
| 08/04/2019 18:00 | | 18:00 | 11,5 | 150 |
| 08/04/2019 19:00 | | 19:00 | 12,9 | 150 |
| 08/04/2019 20:00 | | 20:00 | 13,2 | 150 |
| 08/04/2019 21:00 | | 21:00 | 11,4 | 150 |
| 08/04/2019 22:00 | | 22:00 | 19,9 | 150 |
| 08/04/2019 23:00 | | 23:00 | 16,8 | 150 |
| 09/04/2019 00:00 | 09-Abr | 00:00 | 13,9 | 150 |
| 09/04/2019 01:00 | | 01:00 | 18,5 | 150 |
| 09/04/2019 02:00 | | 02:00 | 34,8 | 150 |
| 09/04/2019 03:00 | | 03:00 | 33,1 | 150 |
| 09/04/2019 04:00 | | 04:00 | 11,7 | 150 |
| 09/04/2019 05:00 | | 05:00 | 11,4 | 150 |
| 09/04/2019 06:00 | | 06:00 | 14,3 | 150 |
| 09/04/2019 07:00 | | 07:00 | 16,7 | 150 |
| 09/04/2019 08:00 | | 08:00 | 18,9 | 150 |
| 09/04/2019 09:00 | | 09:00 | 20,3 | 150 |
| 09/04/2019 10:00 | | 10:00 | 13,1 | 150 |
| 09/04/2019 11:00 | | 11:00 | 10,6 | 150 |
| 09/04/2019 12:00 | | 12:00 | 11,8 | 150 |
| 09/04/2019 13:00 | | 13:00 | 13,2 | 150 |
| 09/04/2019 14:00 | | 14:00 | 13,8 | 150 |
| 09/04/2019 15:00 | | 15:00 | 13,8 | 150 |
| 09/04/2019 16:00 | | 16:00 | 13,8 | 150 |
| 09/04/2019 17:00 | | 17:00 | 13,2 | 150 |
| 09/04/2019 18:00 | | 18:00 | 11,7 | 150 |
| 09/04/2019 19:00 | | 19:00 | 16,3 | 150 |
| 09/04/2019 20:00 | | 20:00 | 7,8 | 150 |
| 09/04/2019 21:00 | | 21:00 | 8,5 | 150 |
| 09/04/2019 22:00 | | 22:00 | 13,8 | 150 |
| 09/04/2019 23:00 | | 23:00 | 13,6 | 150 |
| 10/04/2019 00:00 | 10-Abr | 00:00 | 16,0 | 150 |
| 10/04/2019 01:00 | | 01:00 | 22,8 | 150 |
| 10/04/2019 02:00 | | 02:00 | 16,1 | 150 |
| 10/04/2019 03:00 | | 03:00 | 13,5 | 150 |
| 10/04/2019 04:00 | | 04:00 | 16,3 | 150 |
| 10/04/2019 05:00 | | 05:00 | 16,1 | 150 |
| 10/04/2019 06:00 | | 06:00 | 8,1 | 150 |
| 10/04/2019 07:00 | | 07:00 | 6,5 | 150 |
| 10/04/2019 08:00 | | 08:00 | 16,5 | 150 |
| 10/04/2019 09:00 | | 09:00 | 36,8 | 150 |
| 10/04/2019 10:00 | | 10:00 | 18,5 | 150 |
| 10/04/2019 11:00 | | 11:00 | 15,7 | 150 |
| 10/04/2019 12:00 | | 12:00 | 18,1 | 150 |
| 10/04/2019 13:00 | | 13:00 | 19,3 | 150 |
| 10/04/2019 14:00 | | 14:00 | 27,1 | 150 |
| 10/04/2019 15:00 | | 15:00 | 16,1 | 150 |
| 10/04/2019 16:00 | | 16:00 | 12,4 | 150 |
| 10/04/2019 17:00 | | 17:00 | 16,1 | 150 |
| 10/04/2019 18:00 | | 18:00 | 10,1 | 150 |
| 10/04/2019 19:00 | | 19:00 | 9,2 | 150 |
| 10/04/2019 20:00 | | 20:00 | 13,3 | 150 |
| 10/04/2019 21:00 | 21:00 | 24,2 | 150 | |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date | Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 10/04/2019 22:00 | | 22:00 | 18,8 | 150 |
| 10/04/2019 23:00 | | 23:00 | 26,1 | 150 |
| 11/04/2019 00:00 | 11-Abr | 00:00 | 22,2 | 150 |
| 11/04/2019 01:00 | | 01:00 | 10,1 | 150 |
| 11/04/2019 02:00 | | 02:00 | 12,1 | 150 |
| 11/04/2019 03:00 | | 03:00 | 12,5 | 150 |
| 11/04/2019 04:00 | | 04:00 | 22,7 | 150 |
| 11/04/2019 05:00 | | 05:00 | 24,3 | 150 |
| 11/04/2019 06:00 | | 06:00 | 15,3 | 150 |
| 11/04/2019 07:00 | | 07:00 | 22,4 | 150 |
| 11/04/2019 08:00 | | 08:00 | 30,0 | 150 |
| 11/04/2019 09:00 | | 09:00 | 60,7 | 150 |
| 11/04/2019 10:00 | | 10:00 | 23,8 | 150 |
| 11/04/2019 11:00 | | 11:00 | 19,7 | 150 |
| 11/04/2019 12:00 | | 12:00 | 21,8 | 150 |
| 11/04/2019 13:00 | | 13:00 | 21,8 | 150 |
| 11/04/2019 14:00 | | 14:00 | 16,3 | 150 |
| 11/04/2019 15:00 | | 15:00 | 14,6 | 150 |
| 11/04/2019 16:00 | | 16:00 | 14,2 | 150 |
| 11/04/2019 17:00 | | 17:00 | 17,9 | 150 |
| 11/04/2019 18:00 | | 18:00 | 32,8 | 150 |
| 11/04/2019 19:00 | | 19:00 | 17,9 | 150 |
| 11/04/2019 20:00 | | 20:00 | 12,1 | 150 |
| 11/04/2019 21:00 | | 21:00 | 11,8 | 150 |
| 11/04/2019 22:00 | | 22:00 | 13,5 | 150 |
| 11/04/2019 23:00 | 23:00 | 16,1 | 150 | |
| 12/04/2019 00:00 | 12-Abr | 00:00 | 10,4 | 150 |
| 12/04/2019 01:00 | | 01:00 | 10,0 | 150 |
| 12/04/2019 02:00 | | 02:00 | 10,7 | 150 |
| 12/04/2019 03:00 | | 03:00 | 23,2 | 150 |
| 12/04/2019 04:00 | | 04:00 | 45,2 | 150 |
| 12/04/2019 05:00 | | 05:00 | 10,0 | 150 |
| 12/04/2019 06:00 | | 06:00 | 12,5 | 150 |
| 12/04/2019 07:00 | | 07:00 | 20,9 | 150 |
| 12/04/2019 08:00 | | 08:00 | 60,0 | 150 |
| 12/04/2019 09:00 | | 09:00 | 30,3 | 150 |
| 12/04/2019 10:00 | | 10:00 | 12,2 | 150 |
| 12/04/2019 11:00 | | 11:00 | 10,3 | 150 |
| 12/04/2019 12:00 | | 12:00 | 11,3 | 150 |
| 12/04/2019 13:00 | | 13:00 | 12,1 | 150 |
| 12/04/2019 14:00 | | 14:00 | 12,8 | 150 |
| 12/04/2019 15:00 | | 15:00 | 13,1 | 150 |
| 12/04/2019 16:00 | | 16:00 | 14,2 | 150 |
| 12/04/2019 17:00 | | 17:00 | 14,0 | 150 |
| 12/04/2019 18:00 | | 18:00 | 12,6 | 150 |
| 12/04/2019 19:00 | | 19:00 | 17,8 | 150 |
| 12/04/2019 20:00 | | 20:00 | 22,4 | 150 |
| 12/04/2019 21:00 | | 21:00 | 15,8 | 150 |
| 12/04/2019 22:00 | | 22:00 | 11,3 | 150 |
| 12/04/2019 23:00 | 23:00 | 11,3 | 150 | |
| 13/04/2019 00:00 | 13-Abr | 00:00 | 9,7 | 150 |
| 13/04/2019 01:00 | | 01:00 | 42,8 | 150 |
| 13/04/2019 02:00 | | 02:00 | 25,9 | 150 |
| 13/04/2019 03:00 | | 03:00 | 31,3 | 150 |
| 13/04/2019 04:00 | | 04:00 | 13,8 | 150 |
| 13/04/2019 05:00 | | 05:00 | 17,4 | 150 |
| 13/04/2019 06:00 | | 06:00 | 10,1 | 150 |
| 13/04/2019 07:00 | | 07:00 | 22,1 | 150 |
| 13/04/2019 08:00 | | 08:00 | 40,6 | 150 |
| 13/04/2019 09:00 | | 09:00 | 19,3 | 150 |
| 13/04/2019 10:00 | | 10:00 | 9,2 | 150 |
| 13/04/2019 11:00 | | 11:00 | 9,5 | 150 |
| 13/04/2019 12:00 | | 12:00 | 11,0 | 150 |
| 13/04/2019 13:00 | | 13:00 | 11,8 | 150 |
| 13/04/2019 14:00 | | 14:00 | 12,6 | 150 |
| 13/04/2019 15:00 | | 15:00 | 12,5 | 150 |
| 13/04/2019 16:00 | | 16:00 | 12,5 | 150 |
| 13/04/2019 17:00 | | 17:00 | 12,8 | 150 |
| 13/04/2019 18:00 | | 18:00 | 10,7 | 150 |
| 13/04/2019 19:00 | | 19:00 | 12,1 | 150 |
| 13/04/2019 20:00 | 20:00 | 16,0 | 150 | |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date | Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 13/04/2019 21:00 | | 21:00 | 12,8 | 150 |
| 13/04/2019 22:00 | | 22:00 | 10,3 | 150 |
| 13/04/2019 23:00 | | 23:00 | 9,0 | 150 |
| 14/04/2019 00:00 | 14-Abr | 00:00 | 9,2 | 150 |
| 14/04/2019 01:00 | | 01:00 | 11,4 | 150 |
| 14/04/2019 02:00 | | 02:00 | 27,4 | 150 |
| 14/04/2019 03:00 | | 03:00 | 18,6 | 150 |
| 14/04/2019 04:00 | | 04:00 | 44,3 | 150 |
| 14/04/2019 05:00 | | 05:00 | 37,8 | 150 |
| 14/04/2019 06:00 | | 06:00 | 46,8 | 150 |
| 14/04/2019 07:00 | | 07:00 | 22,8 | 150 |
| 14/04/2019 08:00 | | 08:00 | 20,9 | 150 |
| 14/04/2019 09:00 | | 09:00 | 36,8 | 150 |
| 14/04/2019 10:00 | | 10:00 | 28,6 | 150 |
| 14/04/2019 11:00 | | 11:00 | 27,9 | 150 |
| 14/04/2019 12:00 | | 12:00 | 18,5 | 150 |
| 14/04/2019 13:00 | | 13:00 | 22,0 | 150 |
| 14/04/2019 14:00 | | 14:00 | 25,6 | 150 |
| 14/04/2019 15:00 | | 15:00 | 31,7 | 150 |
| 14/04/2019 16:00 | | 16:00 | 37,9 | 150 |
| 14/04/2019 17:00 | | 17:00 | 36,3 | 150 |
| 14/04/2019 18:00 | | 18:00 | 12,1 | 150 |
| 14/04/2019 19:00 | | 19:00 | 20,0 | 150 |
| 14/04/2019 20:00 | | 20:00 | 12,8 | 150 |
| 14/04/2019 21:00 | | 21:00 | 12,0 | 150 |
| 14/04/2019 22:00 | | 22:00 | 10,6 | 150 |
| 14/04/2019 23:00 | 23:00 | 12,8 | 150 | |
| 15/04/2019 00:00 | 15-Abr | 00:00 | 12,4 | 150 |
| 15/04/2019 01:00 | | 01:00 | 15,7 | 150 |
| 15/04/2019 02:00 | | 02:00 | 9,5 | 150 |
| 15/04/2019 03:00 | | 03:00 | 11,5 | 150 |
| 15/04/2019 04:00 | | 04:00 | 12,2 | 150 |
| 15/04/2019 05:00 | | 05:00 | 13,5 | 150 |
| 15/04/2019 06:00 | | 06:00 | 12,5 | 150 |
| 15/04/2019 07:00 | | 07:00 | 27,1 | 150 |
| 15/04/2019 08:00 | | 08:00 | 29,2 | 150 |
| 15/04/2019 09:00 | | 09:00 | 29,9 | 150 |
| 15/04/2019 10:00 | | 10:00 | 39,3 | 150 |
| 15/04/2019 11:00 | | 11:00 | 26,0 | 150 |
| 15/04/2019 12:00 | | 12:00 | 25,6 | 150 |
| 15/04/2019 13:00 | | 13:00 | 22,8 | 150 |
| 15/04/2019 14:00 | | 14:00 | 34,5 | 150 |
| 15/04/2019 15:00 | | 15:00 | 40,4 | 150 |
| 15/04/2019 16:00 | | 16:00 | 36,7 | 150 |
| 15/04/2019 17:00 | | 17:00 | 12,4 | 150 |
| 15/04/2019 18:00 | | 18:00 | 24,6 | 150 |
| 15/04/2019 19:00 | | 19:00 | 21,3 | 150 |
| 15/04/2019 20:00 | | 20:00 | 20,2 | 150 |
| 15/04/2019 21:00 | | 21:00 | 16,7 | 150 |
| 15/04/2019 22:00 | | 22:00 | 14,6 | 150 |
| 15/04/2019 23:00 | 23:00 | 25,9 | 150 | |
| 16/04/2019 00:00 | 16-Abr | 00:00 | 17,1 | 150 |
| 16/04/2019 01:00 | | 01:00 | 12,0 | 150 |
| 16/04/2019 02:00 | | 02:00 | 12,0 | 150 |
| 16/04/2019 03:00 | | 03:00 | 13,5 | 150 |
| 16/04/2019 04:00 | | 04:00 | 18,3 | 150 |
| 16/04/2019 05:00 | | 05:00 | 18,8 | 150 |
| 16/04/2019 06:00 | | 06:00 | 38,5 | 150 |
| 16/04/2019 07:00 | | 07:00 | 20,0 | 150 |
| 16/04/2019 08:00 | | 08:00 | 27,8 | 150 |
| 16/04/2019 09:00 | | 09:00 | 24,7 | 150 |
| 16/04/2019 10:00 | | 10:00 | 22,8 | 150 |
| 16/04/2019 11:00 | | 11:00 | 30,0 | 150 |
| 16/04/2019 12:00 | | 12:00 | 35,2 | 150 |
| 16/04/2019 13:00 | | 13:00 | 23,4 | 150 |
| 16/04/2019 14:00 | | 14:00 | 27,4 | 150 |
| 16/04/2019 15:00 | | 15:00 | 19,5 | 150 |
| 16/04/2019 16:00 | | 16:00 | 26,4 | 150 |
| 16/04/2019 17:00 | | 17:00 | 44,9 | 150 |
| 16/04/2019 18:00 | | 18:00 | 25,2 | 150 |
| 16/04/2019 19:00 | 19:00 | 25,6 | 150 | |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date | Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 16/04/2019 20:00 | | 20:00 | 27,8 | 150 |
| 16/04/2019 21:00 | | 21:00 | 17,4 | 150 |
| 16/04/2019 22:00 | | 22:00 | 15,0 | 150 |
| 16/04/2019 23:00 | | 23:00 | 24,6 | 150 |
| 17/04/2019 00:00 | 17-Abr | 00:00 | 43,0 | 150 |
| 17/04/2019 01:00 | | 01:00 | 14,6 | 150 |
| 17/04/2019 02:00 | | 02:00 | 10,4 | 150 |
| 17/04/2019 03:00 | | 03:00 | 10,1 | 150 |
| 17/04/2019 04:00 | | 04:00 | 36,7 | 150 |
| 17/04/2019 05:00 | | 05:00 | 59,4 | 150 |
| 17/04/2019 06:00 | | 06:00 | 45,2 | 150 |
| 17/04/2019 07:00 | | 07:00 | 22,9 | 150 |
| 17/04/2019 08:00 | | 08:00 | 22,9 | 150 |
| 17/04/2019 09:00 | | 09:00 | 49,9 | 150 |
| 17/04/2019 10:00 | | 10:00 | 31,7 | 150 |
| 17/04/2019 11:00 | | 11:00 | 19,0 | 150 |
| 17/04/2019 12:00 | | 12:00 | 27,9 | 150 |
| 17/04/2019 13:00 | | 13:00 | 40,3 | 150 |
| 17/04/2019 14:00 | | 14:00 | 30,9 | 150 |
| 17/04/2019 15:00 | | 15:00 | 32,7 | 150 |
| 17/04/2019 16:00 | | 16:00 | 34,3 | 150 |
| 17/04/2019 17:00 | | 17:00 | 31,4 | 150 |
| 17/04/2019 18:00 | | 18:00 | 40,4 | 150 |
| 17/04/2019 19:00 | | 19:00 | 15,2 | 150 |
| 17/04/2019 20:00 | | 20:00 | 23,9 | 150 |
| 17/04/2019 21:00 | | 21:00 | 35,2 | 150 |
| 17/04/2019 22:00 | | 22:00 | 21,8 | 150 |
| 17/04/2019 23:00 | 23:00 | 14,2 | 150 | |
| 18/04/2019 00:00 | 18-Abr | 00:00 | 40,9 | 150 |
| 18/04/2019 01:00 | | 01:00 | 73,7 | 150 |
| 18/04/2019 02:00 | | 02:00 | 61,6 | 150 |
| 18/04/2019 03:00 | | 03:00 | 87,6 | 150 |
| 18/04/2019 04:00 | | 04:00 | 45,3 | 150 |
| 18/04/2019 05:00 | | 05:00 | 24,6 | 150 |
| 18/04/2019 06:00 | | 06:00 | 40,4 | 150 |
| 18/04/2019 07:00 | | 07:00 | 23,6 | 150 |
| 18/04/2019 08:00 | | 08:00 | 31,0 | 150 |
| 18/04/2019 09:00 | | 09:00 | 32,4 | 150 |
| 18/04/2019 10:00 | | 10:00 | 19,7 | 150 |
| 18/04/2019 11:00 | | 11:00 | 20,0 | 150 |
| 18/04/2019 12:00 | | 12:00 | 13,9 | 150 |
| 18/04/2019 13:00 | | 13:00 | 20,4 | 150 |
| 18/04/2019 14:00 | | 14:00 | 34,2 | 150 |
| 18/04/2019 15:00 | | 15:00 | 27,9 | 150 |
| 18/04/2019 16:00 | | 16:00 | 23,5 | 150 |
| 18/04/2019 17:00 | | 17:00 | 39,9 | 150 |
| 18/04/2019 18:00 | | 18:00 | 16,8 | 150 |
| 18/04/2019 19:00 | | 19:00 | 60,6 | 150 |
| 18/04/2019 20:00 | | 20:00 | 63,9 | 150 |
| 18/04/2019 21:00 | | 21:00 | 54,5 | 150 |
| 18/04/2019 22:00 | | 22:00 | 15,6 | 150 |
| 18/04/2019 23:00 | 23:00 | 40,3 | 150 | |
| 19/04/2019 00:00 | 19-Abr | 00:00 | 20,2 | 150 |
| 19/04/2019 01:00 | | 01:00 | 46,4 | 150 |
| 19/04/2019 02:00 | | 02:00 | 32,1 | 150 |
| 19/04/2019 03:00 | | 03:00 | 7,6 | 150 |
| 19/04/2019 04:00 | | 04:00 | 7,8 | 150 |
| 19/04/2019 05:00 | | 05:00 | 9,6 | 150 |
| 19/04/2019 06:00 | | 06:00 | 9,6 | 150 |
| 19/04/2019 07:00 | | 07:00 | 17,1 | 150 |
| 19/04/2019 08:00 | | 08:00 | 34,8 | 150 |
| 19/04/2019 09:00 | | 09:00 | 24,5 | 150 |
| 19/04/2019 10:00 | | 10:00 | 19,2 | 150 |
| 19/04/2019 11:00 | | 11:00 | 13,5 | 150 |
| 19/04/2019 12:00 | | 12:00 | 25,2 | 150 |
| 19/04/2019 13:00 | | 13:00 | 29,2 | 150 |
| 19/04/2019 14:00 | | 14:00 | 26,1 | 150 |
| 19/04/2019 15:00 | | 15:00 | 25,3 | 150 |
| 19/04/2019 16:00 | | 16:00 | 33,6 | 150 |
| 19/04/2019 17:00 | | 17:00 | 30,7 | 150 |
| 19/04/2019 18:00 | 18:00 | 27,5 | 150 | |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date | Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 19/04/2019 19:00 | | 19:00 | 22,9 | 150 |
| 19/04/2019 20:00 | | 20:00 | 33,1 | 150 |
| 19/04/2019 21:00 | | 21:00 | 48,0 | 150 |
| 19/04/2019 22:00 | | 22:00 | 46,1 | 150 |
| 19/04/2019 23:00 | | 23:00 | 76,7 | 150 |
| 20/04/2019 00:00 | 20-Abr | 00:00 | 29,5 | 150 |
| 20/04/2019 01:00 | | 01:00 | 9,3 | 150 |
| 20/04/2019 02:00 | | 02:00 | 9,7 | 150 |
| 20/04/2019 03:00 | | 03:00 | 15,8 | 150 |
| 20/04/2019 04:00 | | 04:00 | 11,1 | 150 |
| 20/04/2019 05:00 | | 05:00 | 42,1 | 150 |
| 20/04/2019 06:00 | | 06:00 | 41,7 | 150 |
| 20/04/2019 07:00 | | 07:00 | 21,1 | 150 |
| 20/04/2019 08:00 | | 08:00 | 34,6 | 150 |
| 20/04/2019 09:00 | | 09:00 | 19,0 | 150 |
| 20/04/2019 10:00 | | 10:00 | 25,4 | 150 |
| 20/04/2019 11:00 | | 11:00 | 29,5 | 150 |
| 20/04/2019 12:00 | | 12:00 | 35,9 | 150 |
| 20/04/2019 13:00 | | 13:00 | 17,0 | 150 |
| 20/04/2019 14:00 | | 14:00 | 28,2 | 150 |
| 20/04/2019 15:00 | | 15:00 | 37,8 | 150 |
| 20/04/2019 16:00 | | 16:00 | 30,3 | 150 |
| 20/04/2019 17:00 | | 17:00 | 30,4 | 150 |
| 20/04/2019 18:00 | | 18:00 | 34,5 | 150 |
| 20/04/2019 19:00 | | 19:00 | 59,4 | 150 |
| 20/04/2019 20:00 | | 20:00 | 52,7 | 150 |
| 20/04/2019 21:00 | | 21:00 | 47,1 | 150 |
| 20/04/2019 22:00 | | 22:00 | 14,5 | 150 |
| 20/04/2019 23:00 | 23:00 | 12,1 | 150 | |
| 21/04/2019 00:00 | 21-Abr | 00:00 | 23,2 | 150 |
| 21/04/2019 01:00 | | 01:00 | 12,8 | 150 |
| 21/04/2019 02:00 | | 02:00 | 13,3 | 150 |
| 21/04/2019 03:00 | | 03:00 | 9,6 | 150 |
| 21/04/2019 04:00 | | 04:00 | 8,8 | 150 |
| 21/04/2019 05:00 | | 05:00 | 10,7 | 150 |
| 21/04/2019 06:00 | | 06:00 | 13,5 | 150 |
| 21/04/2019 07:00 | | 07:00 | 16,3 | 150 |
| 21/04/2019 08:00 | | 08:00 | 31,7 | 150 |
| 21/04/2019 09:00 | | 09:00 | 20,6 | 150 |
| 21/04/2019 10:00 | | 10:00 | 26,8 | 150 |
| 21/04/2019 11:00 | | 11:00 | 34,2 | 150 |
| 21/04/2019 12:00 | | 12:00 | 22,5 | 150 |
| 21/04/2019 13:00 | | 13:00 | 35,6 | 150 |
| 21/04/2019 14:00 | | 14:00 | 23,4 | 150 |
| 21/04/2019 15:00 | | 15:00 | 27,0 | 150 |
| 21/04/2019 16:00 | | 16:00 | 25,2 | 150 |
| 21/04/2019 17:00 | | 17:00 | 24,6 | 150 |
| 21/04/2019 18:00 | | 18:00 | 37,5 | 150 |
| 21/04/2019 19:00 | | 19:00 | 46,7 | 150 |
| 21/04/2019 20:00 | | 20:00 | 53,2 | 150 |
| 21/04/2019 21:00 | | 21:00 | 15,8 | 150 |
| 21/04/2019 22:00 | | 22:00 | 34,2 | 150 |
| 21/04/2019 23:00 | 23:00 | 10,4 | 150 | |
| 22/04/2019 00:00 | 22-Abr | 00:00 | 20,3 | 150 |
| 22/04/2019 01:00 | | 01:00 | 16,3 | 150 |
| 22/04/2019 02:00 | | 02:00 | 34,5 | 150 |
| 22/04/2019 03:00 | | 03:00 | 54,6 | 150 |
| 22/04/2019 04:00 | | 04:00 | 14,5 | 150 |
| 22/04/2019 05:00 | | 05:00 | 10,1 | 150 |
| 22/04/2019 06:00 | | 06:00 | 20,7 | 150 |
| 22/04/2019 07:00 | | 07:00 | 23,5 | 150 |
| 22/04/2019 08:00 | | 08:00 | 24,5 | 150 |
| 22/04/2019 09:00 | | 09:00 | 25,7 | 150 |
| 22/04/2019 10:00 | | 10:00 | 25,6 | 150 |
| 22/04/2019 11:00 | | 11:00 | 12,6 | 150 |
| 22/04/2019 12:00 | | 12:00 | 13,1 | 150 |
| 22/04/2019 13:00 | | 13:00 | 17,5 | 150 |
| 22/04/2019 14:00 | | 14:00 | 40,2 | 150 |
| 22/04/2019 15:00 | | 15:00 | 42,1 | 150 |
| 22/04/2019 16:00 | | 16:00 | 38,8 | 150 |
| 22/04/2019 17:00 | 17:00 | 34,2 | 150 | |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date | Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m³) |
|------------------|--------|-------|----------|--------------------------------|
| 22/04/2019 18:00 | | 18:00 | 35,7 | 150 |
| 22/04/2019 19:00 | | 19:00 | 35,0 | 150 |
| 22/04/2019 20:00 | | 20:00 | 30,0 | 150 |
| 22/04/2019 21:00 | | 21:00 | 19,0 | 150 |
| 22/04/2019 22:00 | | 22:00 | 58,9 | 150 |
| 22/04/2019 23:00 | | 23:00 | 63,0 | 150 |
| 23/04/2019 00:00 | 23-Abr | 00:00 | 59,4 | 150 |
| 23/04/2019 01:00 | | 01:00 | 49,3 | 150 |
| 23/04/2019 02:00 | | 02:00 | 15,3 | 150 |
| 23/04/2019 03:00 | | 03:00 | 11,1 | 150 |
| 23/04/2019 04:00 | | 04:00 | 18,5 | 150 |
| 23/04/2019 05:00 | | 05:00 | 16,4 | 150 |
| 23/04/2019 06:00 | | 06:00 | 43,1 | 150 |
| 23/04/2019 07:00 | | 07:00 | 34,1 | 150 |
| 23/04/2019 08:00 | | 08:00 | 30,0 | 150 |
| 23/04/2019 09:00 | | 09:00 | 13,2 | 150 |
| 23/04/2019 10:00 | | 10:00 | 13,8 | 150 |
| 23/04/2019 11:00 | | 11:00 | 22,4 | 150 |
| 23/04/2019 12:00 | | 12:00 | 31,4 | 150 |
| 23/04/2019 13:00 | | 13:00 | 29,9 | 150 |
| 23/04/2019 14:00 | | 14:00 | 31,6 | 150 |
| 23/04/2019 15:00 | | 15:00 | 23,9 | 150 |
| 23/04/2019 16:00 | | 16:00 | 27,2 | 150 |
| 23/04/2019 17:00 | | 17:00 | 20,3 | 150 |
| 23/04/2019 18:00 | | 18:00 | 17,8 | 150 |
| 23/04/2019 19:00 | | 19:00 | 16,8 | 150 |
| 23/04/2019 20:00 | | 20:00 | 12,4 | 150 |
| 23/04/2019 21:00 | | 21:00 | 12,9 | 150 |
| 23/04/2019 22:00 | | 22:00 | 22,9 | 150 |
| 23/04/2019 23:00 | 23:00 | 20,7 | 150 | |
| 24/04/2019 00:00 | 24-Abr | 00:00 | 16,8 | 150 |
| 24/04/2019 01:00 | | 01:00 | 14,3 | 150 |
| 24/04/2019 02:00 | | 02:00 | 16,0 | 150 |
| 24/04/2019 03:00 | | 03:00 | 16,5 | 150 |
| 24/04/2019 04:00 | | 04:00 | 12,9 | 150 |
| 24/04/2019 05:00 | | 05:00 | 12,2 | 150 |
| 24/04/2019 06:00 | | 06:00 | 11,7 | 150 |
| 24/04/2019 07:00 | | 07:00 | 11,3 | 150 |
| 24/04/2019 08:00 | | 08:00 | 10,6 | 150 |
| 24/04/2019 09:00 | | 09:00 | 12,4 | 150 |
| 24/04/2019 10:00 | | 10:00 | 10,8 | 150 |
| 24/04/2019 11:00 | | 11:00 | 14,2 | 150 |
| 24/04/2019 12:00 | | 12:00 | 15,8 | 150 |
| 24/04/2019 13:00 | | 13:00 | 17,2 | 150 |
| 24/04/2019 14:00 | | 14:00 | 16,8 | 150 |
| 24/04/2019 15:00 | | 15:00 | 17,4 | 150 |
| 24/04/2019 16:00 | | 16:00 | 21,8 | 150 |
| 24/04/2019 17:00 | | 17:00 | 17,4 | 150 |
| 24/04/2019 18:00 | | 18:00 | 31,7 | 150 |
| 24/04/2019 19:00 | | 19:00 | 15,6 | 150 |
| 24/04/2019 20:00 | | 20:00 | 26,3 | 150 |
| 24/04/2019 21:00 | | 21:00 | 19,5 | 150 |
| 24/04/2019 22:00 | | 22:00 | 13,2 | 150 |
| 24/04/2019 23:00 | 23:00 | 38,8 | 150 | |
| 25/04/2019 00:00 | 25-Abr | 00:00 | 31,6 | 150 |
| 25/04/2019 01:00 | | 01:00 | 26,0 | 150 |
| 25/04/2019 02:00 | | 02:00 | 32,1 | 150 |
| 25/04/2019 03:00 | | 03:00 | 62,0 | 150 |
| 25/04/2019 04:00 | | 04:00 | 20,2 | 150 |
| 25/04/2019 05:00 | | 05:00 | 17,8 | 150 |
| 25/04/2019 06:00 | | 06:00 | 21,7 | 150 |
| 25/04/2019 07:00 | | 07:00 | 10,6 | 150 |
| 25/04/2019 08:00 | | 08:00 | 8,8 | 150 |
| 25/04/2019 09:00 | | 09:00 | 9,3 | 150 |
| 25/04/2019 10:00 | | 10:00 | 12,0 | 150 |
| 25/04/2019 11:00 | | 11:00 | 12,9 | 150 |
| 25/04/2019 12:00 | | 12:00 | 14,6 | 150 |
| 25/04/2019 13:00 | | 13:00 | 19,2 | 150 |
| 25/04/2019 14:00 | | 14:00 | 21,8 | 150 |
| 25/04/2019 15:00 | | 15:00 | 22,9 | 150 |
| 25/04/2019 16:00 | 16:00 | 23,5 | 150 | |

Concentraciones horarias del sulfuro de hidrógeno (H2S) en la Estación CA-VMP-2

| date |
|------|
|------|

25/04/2019 17:00
 25/04/2019 18:00
 25/04/2019 19:00
 25/04/2019 20:00
 25/04/2019 21:00
 25/04/2019 22:00
 25/04/2019 23:00

| Fecha | Horas | H2S_ugm3 | ECA H2S - 24 horas (250 µg/m ³) |
|-------|-------|----------|---|
| | 17:00 | 22,1 | 150 |
| | 18:00 | 41,8 | 150 |
| | 19:00 | 46,8 | 150 |
| | 20:00 | 28,9 | 150 |
| | 21:00 | 47,0 | 150 |
| | 22:00 | 56,3 | 150 |
| | 23:00 | 71,4 | 150 |

ANEXO N° 3.3



Organismo
de Evaluación
y Fiscalización
Ambiental

Data Meteorológica

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 08/04/2019 | 00:00 | 753,7 | 21,8 | 80,5 | 0,2 | 225,0 |
| 08/04/2019 | 01:00 | 753,5 | 21,6 | 81,0 | 0,4 | 168,7 |
| 08/04/2019 | 02:00 | 753,2 | 21,2 | 82,0 | 0,6 | 180,0 |
| 08/04/2019 | 03:00 | 753,0 | 20,9 | 83,0 | 0,4 | 180,0 |
| 08/04/2019 | 04:00 | 752,8 | 20,8 | 84,0 | 0,2 | 180,0 |
| 08/04/2019 | 05:00 | 752,8 | 20,4 | 84,0 | 0,0 | 0,0 |
| 08/04/2019 | 06:00 | 753,0 | 20,2 | 85,0 | 0,0 | 0,0 |
| 08/04/2019 | 07:00 | 753,6 | 20,2 | 86,0 | 0,2 | 180,0 |
| 08/04/2019 | 08:00 | 754,2 | 21,1 | 86,0 | 0,6 | 218,1 |
| 08/04/2019 | 09:00 | 754,4 | 24,3 | 75,5 | 1,1 | 243,2 |
| 08/04/2019 | 10:00 | 754,3 | 26,8 | 68,5 | 1,3 | 236,2 |
| 08/04/2019 | 11:00 | 754,0 | 26,9 | 67,5 | 1,6 | 260,6 |
| 08/04/2019 | 12:00 | 753,2 | 27,7 | 64,0 | 2,2 | 270,0 |
| 08/04/2019 | 13:00 | 752,8 | 28,4 | 67,0 | 2,5 | 270,0 |
| 08/04/2019 | 14:00 | 752,5 | 27,3 | 70,5 | 2,5 | 270,0 |
| 08/04/2019 | 15:00 | 752,3 | 26,5 | 71,5 | 2,2 | 270,0 |
| 08/04/2019 | 16:00 | 752,4 | 25,6 | 73,0 | 2,0 | 270,0 |
| 08/04/2019 | 17:00 | 752,7 | 24,2 | 74,5 | 1,6 | 270,0 |
| 08/04/2019 | 18:00 | 753,0 | 23,4 | 75,0 | 1,3 | 292,5 |
| 08/04/2019 | 19:00 | 753,8 | 23,0 | 76,0 | 0,9 | 281,2 |
| 08/04/2019 | 20:00 | 754,0 | 23,4 | 75,0 | 0,4 | 157,5 |
| 08/04/2019 | 21:00 | 754,2 | 23,2 | 75,5 | 0,6 | 244,3 |
| 08/04/2019 | 22:00 | 754,2 | 22,9 | 76,0 | 0,9 | 247,5 |
| 08/04/2019 | 23:00 | 754,0 | 22,6 | 76,0 | 0,4 | 180,0 |
| 09/04/2019 | 00:00 | 753,9 | 22,5 | 76,5 | 0,4 | 168,7 |
| 09/04/2019 | 01:00 | 753,4 | 22,2 | 77,0 | 0,4 | 180,0 |
| 09/04/2019 | 02:00 | 753,1 | 21,8 | 77,0 | 0,6 | 164,4 |
| 09/04/2019 | 03:00 | 752,9 | 21,1 | 78,5 | 0,6 | 186,9 |
| 09/04/2019 | 04:00 | 752,9 | 20,8 | 79,0 | 0,6 | 182,1 |
| 09/04/2019 | 05:00 | 753,2 | 20,5 | 79,5 | 0,4 | 225,0 |
| 09/04/2019 | 06:00 | 753,5 | 20,3 | 80,0 | 0,4 | 168,7 |
| 09/04/2019 | 07:00 | 753,9 | 20,5 | 80,5 | 0,4 | 225,0 |
| 09/04/2019 | 08:00 | 754,4 | 21,8 | 77,5 | 0,2 | 225,0 |
| 09/04/2019 | 09:00 | 754,5 | 24,5 | 70,0 | 1,1 | 238,3 |
| 09/04/2019 | 10:00 | 754,7 | 25,9 | 65,5 | 1,6 | 247,5 |
| 09/04/2019 | 11:00 | 754,4 | 26,2 | 64,0 | 2,0 | 270,0 |
| 09/04/2019 | 12:00 | 753,9 | 27,1 | 67,0 | 2,0 | 270,0 |
| 09/04/2019 | 13:00 | 753,2 | 27,7 | 65,0 | 2,7 | 270,0 |
| 09/04/2019 | 14:00 | 752,7 | 27,5 | 65,5 | 2,9 | 270,0 |
| 09/04/2019 | 15:00 | 752,3 | 25,9 | 69,0 | 3,1 | 270,0 |
| 09/04/2019 | 16:00 | 752,4 | 26,0 | 67,5 | 2,5 | 259,9 |
| 09/04/2019 | 17:00 | 752,6 | 25,6 | 67,5 | 2,2 | 184,7 |
| 09/04/2019 | 18:00 | 753,1 | 23,4 | 73,0 | 2,0 | 272,4 |
| 09/04/2019 | 19:00 | 753,5 | 22,3 | 75,0 | 1,6 | 283,1 |
| 09/04/2019 | 20:00 | 753,8 | 22,6 | 74,5 | 1,3 | 180,0 |
| 09/04/2019 | 21:00 | 754,0 | 22,4 | 75,0 | 0,8 | 185,2 |
| 09/04/2019 | 22:00 | 754,2 | 21,9 | 75,5 | 0,9 | 270,0 |
| 09/04/2019 | 23:00 | 753,8 | 21,3 | 76,0 | 0,9 | 292,5 |
| 10/04/2019 | 00:00 | 753,6 | 20,8 | 77,0 | 0,6 | 279,1 |
| 10/04/2019 | 01:00 | 753,5 | 20,4 | 76,0 | 0,4 | 247,5 |
| 10/04/2019 | 02:00 | 753,2 | 20,2 | 76,5 | 0,2 | 292,5 |
| 10/04/2019 | 03:00 | 753,1 | 19,9 | 77,5 | 0,6 | 285,6 |
| 10/04/2019 | 04:00 | 753,3 | 19,6 | 78,0 | 0,4 | 292,5 |
| 10/04/2019 | 05:00 | 753,4 | 19,3 | 79,0 | 0,0 | 0,0 |
| 10/04/2019 | 06:00 | 753,8 | 19,4 | 80,0 | 0,2 | 22,5 |
| 10/04/2019 | 07:00 | 754,2 | 19,6 | 79,5 | 0,4 | 247,5 |
| 10/04/2019 | 08:00 | 754,5 | 20,9 | 77,0 | 0,6 | 234,1 |
| 10/04/2019 | 09:00 | 754,6 | 23,4 | 70,0 | 1,1 | 235,3 |
| 10/04/2019 | 10:00 | 754,8 | 25,0 | 68,0 | 1,8 | 258,8 |
| 10/04/2019 | 11:00 | 754,6 | 25,7 | 69,0 | 2,0 | 247,5 |
| 10/04/2019 | 12:00 | 754,1 | 25,7 | 69,0 | 2,0 | 270,0 |
| 10/04/2019 | 13:00 | 753,5 | 26,5 | 67,5 | 2,0 | 249,9 |
| 10/04/2019 | 14:00 | 753,0 | 26,4 | 67,0 | 2,0 | 270,0 |
| 10/04/2019 | 15:00 | 752,8 | 25,7 | 68,5 | 1,8 | 270,0 |
| 10/04/2019 | 16:00 | 752,7 | 25,0 | 70,5 | 1,3 | 258,8 |
| 10/04/2019 | 17:00 | 752,9 | 24,3 | 72,5 | 1,3 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 10/04/2019 | 18:00 | 753,3 | 22,8 | 74,5 | 1,3 | 270,0 |
| 10/04/2019 | 19:00 | 753,7 | 21,6 | 76,5 | 1,1 | 283,3 |
| 10/04/2019 | 20:00 | 753,9 | 21,1 | 77,0 | 0,4 | 270,0 |
| 10/04/2019 | 21:00 | 754,0 | 21,1 | 77,0 | 0,9 | 292,5 |
| 10/04/2019 | 22:00 | 753,7 | 20,9 | 77,0 | 0,6 | 260,9 |
| 10/04/2019 | 23:00 | 753,5 | 20,5 | 77,0 | 0,9 | 281,2 |
| 11/04/2019 | 00:00 | 753,4 | 20,3 | 77,0 | 0,2 | 292,5 |
| 11/04/2019 | 01:00 | 753,0 | 20,1 | 77,5 | 0,4 | 236,2 |
| 11/04/2019 | 02:00 | 752,5 | 19,8 | 78,0 | 0,4 | 225,0 |
| 11/04/2019 | 03:00 | 752,3 | 19,6 | 79,0 | 0,2 | 180,0 |
| 11/04/2019 | 04:00 | 752,2 | 19,4 | 79,0 | 0,0 | 0,0 |
| 11/04/2019 | 05:00 | 752,5 | 19,2 | 79,0 | 0,2 | 180,0 |
| 11/04/2019 | 06:00 | 753,1 | 19,2 | 79,0 | 0,4 | 168,7 |
| 11/04/2019 | 07:00 | 753,5 | 19,6 | 79,0 | 0,4 | 157,5 |
| 11/04/2019 | 08:00 | 753,7 | 21,0 | 76,5 | 0,6 | 205,7 |
| 11/04/2019 | 09:00 | 753,8 | 23,7 | 70,0 | 1,1 | 247,5 |
| 11/04/2019 | 10:00 | 754,0 | 26,0 | 64,0 | 1,3 | 225,0 |
| 11/04/2019 | 11:00 | 753,4 | 27,1 | 63,5 | 1,8 | 225,0 |
| 11/04/2019 | 12:00 | 753,2 | 26,4 | 68,0 | 2,0 | 214,9 |
| 11/04/2019 | 13:00 | 752,8 | 27,0 | 65,0 | 1,8 | 247,5 |
| 11/04/2019 | 14:00 | 752,1 | 27,2 | 64,0 | 1,6 | 270,0 |
| 11/04/2019 | 15:00 | 751,5 | 26,8 | 63,5 | 2,2 | 270,0 |
| 11/04/2019 | 16:00 | 751,6 | 25,5 | 70,0 | 2,5 | 282,4 |
| 11/04/2019 | 17:00 | 752,0 | 23,6 | 74,5 | 2,2 | 292,5 |
| 11/04/2019 | 18:00 | 752,0 | 23,1 | 75,0 | 1,1 | 292,5 |
| 11/04/2019 | 19:00 | 752,2 | 23,6 | 73,0 | 0,4 | 213,7 |
| 11/04/2019 | 20:00 | 752,2 | 23,2 | 74,5 | 0,6 | 211,6 |
| 11/04/2019 | 21:00 | 752,5 | 22,7 | 75,0 | 0,4 | 191,2 |
| 11/04/2019 | 22:00 | 752,6 | 22,2 | 75,5 | 0,6 | 186,9 |
| 11/04/2019 | 23:00 | 752,6 | 21,6 | 76,0 | 0,6 | 166,6 |
| 12/04/2019 | 00:00 | 752,2 | 21,0 | 77,0 | 0,9 | 168,7 |
| 12/04/2019 | 01:00 | 752,0 | 20,8 | 77,5 | 0,4 | 157,5 |
| 12/04/2019 | 02:00 | 751,8 | 20,3 | 78,0 | 0,6 | 112,5 |
| 12/04/2019 | 03:00 | 752,0 | 20,3 | 78,0 | 0,6 | 178,5 |
| 12/04/2019 | 04:00 | 752,2 | 19,9 | 79,5 | 0,6 | 180,0 |
| 12/04/2019 | 05:00 | 752,2 | 19,8 | 80,0 | 0,2 | 180,0 |
| 12/04/2019 | 06:00 | 752,5 | 19,9 | 79,5 | 0,0 | 0,0 |
| 12/04/2019 | 07:00 | 753,3 | 19,9 | 79,5 | 0,4 | 168,7 |
| 12/04/2019 | 08:00 | 753,8 | 21,1 | 78,0 | 0,6 | 218,1 |
| 12/04/2019 | 09:00 | 753,8 | 23,6 | 71,0 | 1,1 | 238,3 |
| 12/04/2019 | 10:00 | 753,7 | 26,2 | 62,5 | 1,1 | 238,3 |
| 12/04/2019 | 11:00 | 753,1 | 26,6 | 66,5 | 1,8 | 270,0 |
| 12/04/2019 | 12:00 | 752,6 | 26,6 | 67,5 | 2,0 | 270,0 |
| 12/04/2019 | 13:00 | 752,2 | 27,0 | 65,5 | 2,0 | 270,0 |
| 12/04/2019 | 14:00 | 751,8 | 27,0 | 64,5 | 1,8 | 270,0 |
| 12/04/2019 | 15:00 | 751,3 | 26,9 | 63,5 | 2,0 | 270,0 |
| 12/04/2019 | 16:00 | 751,3 | 26,3 | 67,0 | 1,8 | 253,6 |
| 12/04/2019 | 17:00 | 751,5 | 24,9 | 70,0 | 1,8 | 270,0 |
| 12/04/2019 | 18:00 | 751,5 | 23,1 | 73,5 | 1,3 | 281,2 |
| 12/04/2019 | 19:00 | 752,0 | 22,8 | 74,5 | 0,9 | 292,5 |
| 12/04/2019 | 20:00 | 752,3 | 22,8 | 74,0 | 0,4 | 281,2 |
| 12/04/2019 | 21:00 | 752,3 | 22,5 | 74,0 | 0,4 | 168,7 |
| 12/04/2019 | 22:00 | 752,5 | 22,1 | 75,0 | 0,4 | 135,0 |
| 12/04/2019 | 23:00 | 752,8 | 21,5 | 76,0 | 0,4 | 135,0 |
| 13/04/2019 | 00:00 | 752,7 | 21,2 | 76,0 | 0,4 | 135,0 |
| 13/04/2019 | 01:00 | 752,4 | 20,6 | 77,0 | 0,6 | 131,8 |
| 13/04/2019 | 02:00 | 752,2 | 20,3 | 77,0 | 0,4 | 157,5 |
| 13/04/2019 | 03:00 | 752,4 | 19,8 | 78,5 | 0,4 | 213,7 |
| 13/04/2019 | 04:00 | 752,5 | 19,5 | 79,5 | 0,4 | 236,2 |
| 13/04/2019 | 05:00 | 752,4 | 19,4 | 80,5 | 0,2 | 247,5 |
| 13/04/2019 | 06:00 | 753,0 | 19,5 | 81,0 | 0,2 | 270,0 |
| 13/04/2019 | 07:00 | 753,6 | 19,8 | 81,0 | 0,2 | 225,0 |
| 13/04/2019 | 08:00 | 753,9 | 20,9 | 78,0 | 0,6 | 279,1 |
| 13/04/2019 | 09:00 | 754,0 | 23,4 | 71,5 | 0,9 | 258,8 |
| 13/04/2019 | 10:00 | 754,2 | 25,2 | 65,5 | 1,3 | 247,5 |
| 13/04/2019 | 11:00 | 753,6 | 25,9 | 68,0 | 1,6 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|--------------|-------------|-------------|-------------|-----------|-----------|-----------|
| 13/04/2019 | 12:00 | 753,0 | 26,2 | 66,5 | 2,0 | 270,0 |
| 13/04/2019 | 13:00 | 752,2 | 27,4 | 63,5 | 1,8 | 258,8 |
| 13/04/2019 | 14:00 | 751,9 | 26,5 | 64,5 | 2,0 | 257,6 |
| 13/04/2019 | 15:00 | 751,4 | 26,6 | 65,5 | 1,8 | 258,8 |
| 13/04/2019 | 16:00 | 751,5 | 25,9 | 68,0 | 1,8 | 258,8 |
| 13/04/2019 | 17:00 | 751,7 | 24,4 | 72,0 | 1,6 | 256,9 |
| 13/04/2019 | 18:00 | 751,8 | 22,6 | 74,5 | 1,1 | 270,0 |
| 13/04/2019 | 19:00 | 752,2 | 21,8 | 75,5 | 0,9 | 281,2 |
| 13/04/2019 | 20:00 | 752,5 | 21,9 | 75,5 | 0,4 | 258,8 |
| 13/04/2019 | 21:00 | 752,8 | 21,6 | 76,0 | 0,4 | 236,2 |
| 13/04/2019 | 22:00 | 753,0 | 21,4 | 76,0 | 0,4 | 225,0 |
| 13/04/2019 | 23:00 | 752,8 | 21,0 | 77,0 | 0,4 | 180,0 |
| 14/04/2019 | 00:00 | 752,7 | 20,6 | 77,0 | 0,6 | 157,5 |
| 14/04/2019 | 01:00 | 752,4 | 20,1 | 78,0 | 0,6 | 202,5 |
| 14/04/2019 | 02:00 | 752,2 | 19,8 | 79,5 | 0,4 | 157,5 |
| 14/04/2019 | 03:00 | 751,9 | 19,6 | 80,5 | 0,4 | 157,5 |
| 14/04/2019 | 04:00 | 751,8 | 19,4 | 81,0 | 0,4 | 157,5 |
| 14/04/2019 | 05:00 | 751,9 | 19,2 | 82,0 | 0,4 | 157,5 |
| 14/04/2019 | 06:00 | 752,4 | 19,1 | 82,0 | 0,4 | 157,5 |
| 14/04/2019 | 07:00 | 753,1 | 19,2 | 82,5 | 0,2 | 157,5 |
| 14/04/2019 | 08:00 | 753,5 | 20,0 | 81,5 | 0,4 | 157,5 |
| 14/04/2019 | 09:00 | 753,7 | 22,9 | 74,0 | 0,9 | 236,2 |
| 14/04/2019 | 10:00 | 754,0 | 25,6 | 66,0 | 1,6 | 243,7 |
| 14/04/2019 | 11:00 | 754,0 | 26,3 | 63,5 | 1,6 | 215,6 |
| 14/04/2019 | 12:00 | 753,5 | 26,9 | 62,5 | 1,8 | 247,5 |
| 14/04/2019 | 13:00 | 753,0 | 27,3 | 62,0 | 1,8 | 258,8 |
| 14/04/2019 | 14:00 | 752,5 | 26,8 | 63,0 | 1,8 | 270,0 |
| 14/04/2019 | 15:00 | 752,0 | 27,1 | 59,5 | 1,6 | 260,6 |
| 14/04/2019 | 16:00 | 751,9 | 26,4 | 63,0 | 1,3 | 258,8 |
| 14/04/2019 | 17:00 | 752,1 | 24,9 | 70,5 | 1,3 | 258,8 |
| 14/04/2019 | 18:00 | 752,3 | 22,4 | 75,5 | 1,1 | 283,3 |
| 14/04/2019 | 19:00 | 752,8 | 22,0 | 76,0 | 0,6 | 292,5 |
| 14/04/2019 | 20:00 | 753,0 | 21,9 | 76,0 | 0,6 | 225,0 |
| 14/04/2019 | 21:00 | 753,2 | 21,8 | 76,0 | 0,4 | 225,0 |
| 14/04/2019 | 22:00 | 753,2 | 21,4 | 76,5 | 0,6 | 231,9 |
| 14/04/2019 | 23:00 | 753,0 | 20,9 | 77,0 | 0,4 | 247,5 |
| 15/04/2019 | 00:00 | 752,8 | 20,6 | 77,0 | 0,4 | 202,5 |
| 15/04/2019 | 01:00 | 752,5 | 20,2 | 78,5 | 0,4 | 247,5 |
| 15/04/2019 | 02:00 | 752,2 | 20,0 | 79,0 | 0,4 | 180,0 |
| 15/04/2019 | 03:00 | 752,1 | 19,7 | 80,5 | 0,6 | 182,1 |
| 15/04/2019 | 04:00 | 752,0 | 19,4 | 81,5 | 0,2 | 202,5 |
| 15/04/2019 | 05:00 | 752,2 | 19,1 | 83,0 | 0,4 | 180,0 |
| 15/04/2019 | 06:00 | 752,9 | 19,0 | 83,0 | 0,2 | 180,0 |
| 15/04/2019 | 07:00 | 753,6 | 19,2 | 84,0 | 0,2 | 180,0 |
| 15/04/2019 | 08:00 | 754,0 | 20,5 | 81,5 | 0,2 | 202,5 |
| 15/04/2019 | 09:00 | 754,2 | 22,9 | 74,5 | 0,8 | 242,3 |
| 15/04/2019 | 10:00 | 754,2 | 25,9 | 65,5 | 1,3 | 225,0 |
| 15/04/2019 | 11:00 | 753,9 | 27,3 | 62,0 | 1,6 | 270,0 |
| 15/04/2019 | 12:00 | 753,7 | 27,1 | 64,5 | 1,8 | 225,0 |
| 15/04/2019 | 13:00 | 753,2 | 27,7 | 66,0 | 1,8 | 270,0 |
| 15/04/2019 | 14:00 | 752,8 | 27,5 | 65,5 | 1,8 | 270,0 |
| 15/04/2019 | 15:00 | 752,2 | 27,8 | 65,0 | 1,8 | 247,5 |
| 15/04/2019 | 16:00 | 752,2 | 26,7 | 67,0 | 1,3 | 258,8 |
| 15/04/2019 | 17:00 | 752,3 | 25,5 | 69,0 | 1,3 | 258,8 |
| 15/04/2019 | 18:00 | 752,4 | 24,1 | 72,5 | 0,6 | 270,0 |
| 15/04/2019 | 19:00 | 753,0 | 23,5 | 73,5 | 0,4 | 213,7 |
| 15/04/2019 | 20:00 | 753,5 | 23,0 | 74,5 | 0,6 | 186,9 |
| 15/04/2019 | 21:00 | 753,8 | 22,4 | 75,5 | 0,6 | 157,5 |
| 15/04/2019 | 22:00 | 754,1 | 21,9 | 76,0 | 0,4 | 157,5 |
| 15/04/2019 | 23:00 | 754,0 | 21,4 | 77,0 | 0,4 | 146,2 |
| 16/04/2019 | 00:00 | 753,8 | 20,8 | 77,5 | 0,4 | 157,5 |
| 16/04/2019 | 01:00 | 753,4 | 20,4 | 78,5 | 0,9 | 135,0 |
| 16/04/2019 | 02:00 | 752,8 | 20,3 | 79,0 | 0,4 | 157,5 |
| 16/04/2019 | 03:00 | 752,6 | 20,3 | 79,0 | 0,0 | 0,0 |
| 16/04/2019 | 04:00 | 752,7 | 20,0 | 80,0 | 0,4 | 168,7 |
| 16/04/2019 | 05:00 | 752,4 | 19,8 | 80,5 | 0,4 | 168,7 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 16/04/2019 | 06:00 | 752,8 | 19,3 | 82,5 | 0,4 | 146,2 |
| 16/04/2019 | 07:00 | 753,3 | 19,5 | 83,0 | 0,4 | 135,0 |
| 16/04/2019 | 08:00 | 753,9 | 20,4 | 82,0 | 0,6 | 228,2 |
| 16/04/2019 | 09:00 | 754,0 | 22,8 | 75,5 | 0,6 | 254,4 |
| 16/04/2019 | 10:00 | 754,1 | 25,9 | 66,5 | 1,3 | 247,5 |
| 16/04/2019 | 11:00 | 754,0 | 26,0 | 65,5 | 1,8 | 236,2 |
| 16/04/2019 | 12:00 | 753,5 | 26,6 | 63,5 | 1,3 | 247,5 |
| 16/04/2019 | 13:00 | 752,9 | 27,8 | 63,0 | 1,6 | 234,4 |
| 16/04/2019 | 14:00 | 752,4 | 27,4 | 66,5 | 1,8 | 258,8 |
| 16/04/2019 | 15:00 | 751,9 | 27,5 | 66,5 | 1,6 | 247,5 |
| 16/04/2019 | 16:00 | 751,7 | 27,4 | 67,5 | 1,3 | 202,5 |
| 16/04/2019 | 17:00 | 752,0 | 25,9 | 69,0 | 1,1 | 229,3 |
| 16/04/2019 | 18:00 | 752,3 | 23,9 | 73,5 | 0,8 | 237,4 |
| 16/04/2019 | 19:00 | 752,7 | 23,2 | 75,0 | 0,6 | 186,9 |
| 16/04/2019 | 20:00 | 753,2 | 22,5 | 76,0 | 0,6 | 270,0 |
| 16/04/2019 | 21:00 | 753,5 | 22,3 | 76,0 | 0,6 | 240,6 |
| 16/04/2019 | 22:00 | 753,4 | 22,1 | 76,0 | 0,4 | 180,0 |
| 16/04/2019 | 23:00 | 753,3 | 22,1 | 76,0 | 0,4 | 202,5 |
| 17/04/2019 | 00:00 | 753,1 | 21,5 | 77,0 | 0,6 | 195,6 |
| 17/04/2019 | 01:00 | 752,8 | 21,0 | 77,5 | 0,6 | 157,5 |
| 17/04/2019 | 02:00 | 752,5 | 20,6 | 78,5 | 0,4 | 157,5 |
| 17/04/2019 | 03:00 | 752,2 | 20,6 | 79,5 | 0,4 | 202,5 |
| 17/04/2019 | 04:00 | 752,2 | 20,3 | 80,0 | 0,4 | 180,0 |
| 17/04/2019 | 05:00 | 752,4 | 20,0 | 80,5 | 0,4 | 202,5 |
| 17/04/2019 | 06:00 | 752,8 | 19,8 | 81,5 | 0,2 | 202,5 |
| 17/04/2019 | 07:00 | 753,4 | 20,1 | 81,0 | 0,2 | 180,0 |
| 17/04/2019 | 08:00 | 753,6 | 21,5 | 78,0 | 0,2 | 225,0 |
| 17/04/2019 | 09:00 | 754,0 | 23,6 | 72,5 | 1,3 | 236,2 |
| 17/04/2019 | 10:00 | 754,0 | 26,1 | 65,5 | 1,1 | 251,8 |
| 17/04/2019 | 11:00 | 753,7 | 26,8 | 62,5 | 1,8 | 258,8 |
| 17/04/2019 | 12:00 | 753,3 | 27,6 | 60,5 | 1,6 | 260,6 |
| 17/04/2019 | 13:00 | 752,9 | 26,2 | 68,5 | 2,0 | 270,0 |
| 17/04/2019 | 14:00 | 752,0 | 25,8 | 69,5 | 1,8 | 270,0 |
| 17/04/2019 | 15:00 | 751,8 | 25,9 | 69,5 | 1,6 | 260,6 |
| 17/04/2019 | 16:00 | 751,8 | 24,4 | 73,0 | 1,6 | 270,0 |
| 17/04/2019 | 17:00 | 751,8 | 24,6 | 73,0 | 1,1 | 251,8 |
| 17/04/2019 | 18:00 | 752,1 | 23,2 | 74,5 | 0,9 | 247,5 |
| 17/04/2019 | 19:00 | 752,6 | 21,9 | 76,0 | 0,6 | 225,0 |
| 17/04/2019 | 20:00 | 753,0 | 21,5 | 76,5 | 0,6 | 256,6 |
| 17/04/2019 | 21:00 | 753,2 | 21,2 | 77,0 | 0,4 | 202,5 |
| 17/04/2019 | 22:00 | 753,2 | 21,0 | 77,5 | 0,4 | 191,2 |
| 17/04/2019 | 23:00 | 753,1 | 20,9 | 78,5 | 0,2 | 225,0 |
| 18/04/2019 | 00:00 | 752,9 | 20,6 | 79,5 | 0,4 | 202,5 |
| 18/04/2019 | 01:00 | 752,5 | 20,2 | 80,5 | 0,0 | 0,0 |
| 18/04/2019 | 02:00 | 752,2 | 19,9 | 82,0 | 0,0 | 0,0 |
| 18/04/2019 | 03:00 | 752,1 | 19,6 | 83,0 | 0,2 | 225,0 |
| 18/04/2019 | 04:00 | 752,0 | 19,4 | 83,0 | 0,0 | 0,0 |
| 18/04/2019 | 05:00 | 751,8 | 19,4 | 83,0 | 0,2 | 225,0 |
| 18/04/2019 | 06:00 | 752,2 | 19,2 | 83,0 | 0,4 | 225,0 |
| 18/04/2019 | 07:00 | 752,9 | 19,5 | 83,0 | 0,4 | 202,5 |
| 18/04/2019 | 08:00 | 753,2 | 20,2 | 81,5 | 0,4 | 213,7 |
| 18/04/2019 | 09:00 | 753,5 | 22,4 | 76,5 | 0,6 | 234,1 |
| 18/04/2019 | 10:00 | 753,9 | 24,4 | 70,0 | 1,6 | 238,1 |
| 18/04/2019 | 11:00 | 753,5 | 25,0 | 66,5 | 1,8 | 270,0 |
| 18/04/2019 | 12:00 | 753,1 | 25,2 | 66,0 | 1,3 | 270,0 |
| 18/04/2019 | 13:00 | 752,5 | 25,6 | 65,0 | 1,3 | 258,8 |
| 18/04/2019 | 14:00 | 752,1 | 25,0 | 66,0 | 1,6 | 256,9 |
| 18/04/2019 | 15:00 | 751,7 | 25,1 | 66,0 | 1,3 | 258,8 |
| 18/04/2019 | 16:00 | 751,5 | 25,9 | 66,5 | 1,1 | 247,5 |
| 18/04/2019 | 17:00 | 751,8 | 24,3 | 72,5 | 0,9 | 225,0 |
| 18/04/2019 | 18:00 | 752,0 | 23,0 | 74,5 | 0,6 | 209,4 |
| 18/04/2019 | 19:00 | 752,4 | 21,9 | 76,0 | 0,4 | 202,5 |
| 18/04/2019 | 20:00 | 753,0 | 21,2 | 77,0 | 0,2 | 180,0 |
| 18/04/2019 | 21:00 | 753,2 | 21,0 | 78,5 | 0,4 | 236,2 |
| 18/04/2019 | 22:00 | 753,3 | 20,5 | 79,5 | 0,0 | 0,0 |
| 18/04/2019 | 23:00 | 753,3 | 20,2 | 81,0 | 0,0 | 0,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 19/04/2019 | 00:00 | 753,1 | 20,4 | 80,5 | 0,0 | |
| 19/04/2019 | 01:00 | 752,8 | 20,4 | 81,0 | 0,4 | 225,0 |
| 19/04/2019 | 02:00 | 752,7 | 20,1 | 82,5 | 0,6 | 263,1 |
| 19/04/2019 | 03:00 | 752,5 | 19,9 | 83,0 | 0,4 | 270,0 |
| 19/04/2019 | 04:00 | 752,5 | 19,8 | 83,0 | 0,0 | 0,0 |
| 19/04/2019 | 05:00 | 752,3 | 19,6 | 82,0 | 0,2 | 315,0 |
| 19/04/2019 | 06:00 | 752,8 | 19,4 | 83,0 | 0,2 | 225,0 |
| 19/04/2019 | 07:00 | 753,5 | 19,6 | 83,0 | 0,4 | 191,2 |
| 19/04/2019 | 08:00 | 754,0 | 20,9 | 81,0 | 0,6 | 256,6 |
| 19/04/2019 | 09:00 | 754,7 | 22,4 | 76,0 | 1,4 | 247,5 |
| 19/04/2019 | 10:00 | 754,9 | 23,9 | 71,0 | 1,8 | 168,7 |
| 19/04/2019 | 11:00 | 754,8 | 25,5 | 67,0 | 1,8 | 213,7 |
| 19/04/2019 | 12:00 | 754,2 | 26,0 | 65,5 | 2,0 | 249,9 |
| 19/04/2019 | 13:00 | 753,8 | 25,6 | 66,0 | 2,5 | 257,6 |
| 19/04/2019 | 14:00 | 753,3 | 25,9 | 65,0 | 1,8 | 247,5 |
| 19/04/2019 | 15:00 | 753,0 | 26,1 | 64,0 | 1,8 | 270,0 |
| 19/04/2019 | 16:00 | 753,0 | 24,8 | 66,5 | 1,8 | 270,0 |
| 19/04/2019 | 17:00 | 752,9 | 24,0 | 69,0 | 0,9 | 258,8 |
| 19/04/2019 | 18:00 | 753,2 | 22,7 | 73,0 | 0,9 | 247,5 |
| 19/04/2019 | 19:00 | 753,7 | 21,7 | 75,5 | 0,6 | 234,1 |
| 19/04/2019 | 20:00 | 754,0 | 21,4 | 76,5 | 0,4 | 202,5 |
| 19/04/2019 | 21:00 | 754,2 | 21,4 | 76,5 | 0,4 | 180,0 |
| 19/04/2019 | 22:00 | 754,0 | 21,2 | 77,5 | 0,4 | 213,7 |
| 19/04/2019 | 23:00 | 753,9 | 21,1 | 78,5 | 0,4 | 247,5 |
| 20/04/2019 | 00:00 | 754,0 | 20,7 | 79,5 | 0,4 | 258,8 |
| 20/04/2019 | 01:00 | 753,8 | 20,3 | 81,0 | 0,2 | 202,5 |
| 20/04/2019 | 02:00 | 753,5 | 20,1 | 82,0 | 0,4 | 258,8 |
| 20/04/2019 | 03:00 | 753,1 | 20,0 | 82,0 | 0,0 | 0,0 |
| 20/04/2019 | 04:00 | 752,8 | 19,9 | 82,0 | 0,0 | 0,0 |
| 20/04/2019 | 05:00 | 753,0 | 19,8 | 82,5 | 0,4 | 191,2 |
| 20/04/2019 | 06:00 | 753,2 | 19,8 | 84,0 | 0,0 | 0,0 |
| 20/04/2019 | 07:00 | 753,9 | 20,0 | 84,0 | 0,2 | 67,5 |
| 20/04/2019 | 08:00 | 754,5 | 20,8 | 82,5 | 0,6 | 254,4 |
| 20/04/2019 | 09:00 | 754,8 | 23,1 | 76,0 | 0,9 | 225,0 |
| 20/04/2019 | 10:00 | 755,0 | 25,7 | 68,0 | 1,3 | 225,0 |
| 20/04/2019 | 11:00 | 754,8 | 27,3 | 63,5 | 1,3 | 247,5 |
| 20/04/2019 | 12:00 | 754,3 | 27,4 | 62,0 | 1,8 | 258,8 |
| 20/04/2019 | 13:00 | 754,2 | 26,8 | 63,5 | 1,8 | 270,0 |
| 20/04/2019 | 14:00 | 753,8 | 27,5 | 60,0 | 1,8 | 236,2 |
| 20/04/2019 | 15:00 | 753,5 | 27,2 | 61,5 | 1,8 | 258,8 |
| 20/04/2019 | 16:00 | 753,0 | 26,4 | 64,5 | 1,3 | 258,8 |
| 20/04/2019 | 17:00 | 753,2 | 25,4 | 67,0 | 1,1 | 238,3 |
| 20/04/2019 | 18:00 | 753,4 | 24,1 | 70,0 | 0,9 | 213,7 |
| 20/04/2019 | 19:00 | 753,9 | 22,6 | 74,0 | 0,6 | 240,6 |
| 20/04/2019 | 20:00 | 754,2 | 22,2 | 76,0 | 0,0 | 0,0 |
| 20/04/2019 | 21:00 | 754,6 | 22,0 | 77,5 | 0,4 | 225,0 |
| 20/04/2019 | 22:00 | 754,8 | 21,5 | 79,0 | 0,2 | 225,0 |
| 20/04/2019 | 23:00 | 754,5 | 21,3 | 79,5 | 0,0 | 0,0 |
| 21/04/2019 | 00:00 | 754,0 | 21,2 | 80,5 | 0,4 | 247,5 |
| 21/04/2019 | 01:00 | 753,7 | 20,9 | 82,0 | 0,6 | 263,1 |
| 21/04/2019 | 02:00 | 753,5 | 20,8 | 83,0 | 0,4 | 258,8 |
| 21/04/2019 | 03:00 | 753,3 | 20,5 | 83,0 | 0,2 | 247,5 |
| 21/04/2019 | 04:00 | 753,2 | 20,2 | 83,0 | 0,2 | 270,0 |
| 21/04/2019 | 05:00 | 753,2 | 20,1 | 83,0 | 0,2 | 247,5 |
| 21/04/2019 | 06:00 | 753,6 | 19,9 | 83,0 | 0,2 | 247,5 |
| 21/04/2019 | 07:00 | 753,9 | 20,2 | 83,0 | 0,4 | 247,5 |
| 21/04/2019 | 08:00 | 754,6 | 21,1 | 82,0 | 0,9 | 247,5 |
| 21/04/2019 | 09:00 | 755,0 | 23,1 | 76,5 | 0,4 | 236,2 |
| 21/04/2019 | 10:00 | 755,1 | 26,2 | 67,0 | 1,3 | 247,5 |
| 21/04/2019 | 11:00 | 755,0 | 26,5 | 65,5 | 1,8 | 236,2 |
| 21/04/2019 | 12:00 | 754,5 | 27,2 | 67,5 | 2,2 | 247,5 |
| 21/04/2019 | 13:00 | 754,1 | 26,8 | 69,0 | 2,7 | 236,2 |
| 21/04/2019 | 14:00 | 753,8 | 25,9 | 70,0 | 2,2 | 247,5 |
| 21/04/2019 | 15:00 | 753,3 | 26,1 | 70,0 | 1,6 | 256,9 |
| 21/04/2019 | 16:00 | 753,1 | 25,6 | 71,0 | 1,3 | 258,8 |
| 21/04/2019 | 17:00 | 753,2 | 24,9 | 72,5 | 0,9 | 236,2 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 21/04/2019 | 18:00 | 753,4 | 23,4 | 74,5 | 0,6 | 240,6 |
| 21/04/2019 | 19:00 | 753,9 | 22,4 | 76,0 | 0,4 | 213,7 |
| 21/04/2019 | 20:00 | 754,2 | 21,9 | 76,5 | 0,4 | 191,2 |
| 21/04/2019 | 21:00 | 754,5 | 21,5 | 78,5 | 0,4 | 213,7 |
| 21/04/2019 | 22:00 | 754,5 | 21,1 | 79,5 | 0,4 | 258,8 |
| 21/04/2019 | 23:00 | 754,5 | 20,9 | 81,0 | 0,4 | 225,0 |
| 22/04/2019 | 00:00 | 754,2 | 20,6 | 82,0 | 0,4 | 258,8 |
| 22/04/2019 | 01:00 | 753,8 | 20,6 | 82,0 | 0,4 | 225,0 |
| 22/04/2019 | 02:00 | 753,4 | 20,4 | 81,5 | 0,4 | 202,5 |
| 22/04/2019 | 03:00 | 753,1 | 20,1 | 82,0 | 0,4 | 157,5 |
| 22/04/2019 | 04:00 | 753,0 | 20,1 | 83,0 | 0,4 | 180,0 |
| 22/04/2019 | 05:00 | 752,9 | 20,1 | 83,0 | 0,2 | 180,0 |
| 22/04/2019 | 06:00 | 753,1 | 19,9 | 82,5 | 0,6 | 202,5 |
| 22/04/2019 | 07:00 | 753,7 | 20,2 | 83,0 | 0,6 | 202,5 |
| 22/04/2019 | 08:00 | 754,0 | 20,9 | 82,5 | 0,4 | 180,0 |
| 22/04/2019 | 09:00 | 754,3 | 22,4 | 77,5 | 0,6 | 238,4 |
| 22/04/2019 | 10:00 | 754,4 | 25,9 | 67,5 | 1,1 | 226,2 |
| 22/04/2019 | 11:00 | 754,2 | 26,6 | 64,5 | 1,3 | 270,0 |
| 22/04/2019 | 12:00 | 753,8 | 26,6 | 69,5 | 2,0 | 247,5 |
| 22/04/2019 | 13:00 | 753,3 | 26,7 | 68,0 | 2,0 | 257,6 |
| 22/04/2019 | 14:00 | 752,9 | 27,2 | 66,5 | 2,0 | 270,0 |
| 22/04/2019 | 15:00 | 752,4 | 28,1 | 62,5 | 1,6 | 247,5 |
| 22/04/2019 | 16:00 | 752,3 | 27,8 | 63,5 | 1,8 | 247,5 |
| 22/04/2019 | 17:00 | 752,7 | 25,9 | 70,0 | 1,3 | 213,7 |
| 22/04/2019 | 18:00 | 753,3 | 23,9 | 74,0 | 0,9 | 225,0 |
| 22/04/2019 | 19:00 | 753,7 | 23,0 | 75,5 | 0,9 | 225,0 |
| 22/04/2019 | 20:00 | 754,0 | 22,5 | 76,5 | 0,6 | 234,1 |
| 22/04/2019 | 21:00 | 753,9 | 22,2 | 77,0 | 0,2 | 202,5 |
| 22/04/2019 | 22:00 | 754,1 | 21,8 | 77,5 | 0,6 | 202,5 |
| 22/04/2019 | 23:00 | 753,9 | 21,4 | 79,5 | 0,4 | 202,5 |
| 23/04/2019 | 00:00 | 753,6 | 21,1 | 81,0 | 0,2 | 202,5 |
| 23/04/2019 | 01:00 | 753,7 | 20,9 | 82,0 | 0,6 | 254,4 |
| 23/04/2019 | 02:00 | 753,5 | 20,6 | 82,5 | 0,4 | 225,0 |
| 23/04/2019 | 03:00 | 753,3 | 20,6 | 83,0 | 0,4 | 247,5 |
| 23/04/2019 | 04:00 | 753,2 | 20,4 | 83,0 | 0,0 | 0,0 |
| 23/04/2019 | 05:00 | 753,2 | 20,2 | 83,0 | 0,0 | 0,0 |
| 23/04/2019 | 06:00 | 753,5 | 20,1 | 84,0 | 0,4 | 247,5 |
| 23/04/2019 | 07:00 | 754,0 | 20,2 | 85,0 | 0,2 | 112,5 |
| 23/04/2019 | 08:00 | 754,5 | 20,9 | 83,5 | 0,9 | 247,5 |
| 23/04/2019 | 09:00 | 754,5 | 22,8 | 78,5 | 0,6 | 256,6 |
| 23/04/2019 | 10:00 | 754,4 | 25,6 | 69,0 | 1,3 | 225,0 |
| 23/04/2019 | 11:00 | 754,0 | 26,9 | 65,5 | 1,6 | 234,4 |
| 23/04/2019 | 12:00 | 753,7 | 26,7 | 70,0 | 1,8 | 253,6 |
| 23/04/2019 | 13:00 | 753,7 | 26,1 | 71,0 | 1,6 | 260,6 |
| 23/04/2019 | 14:00 | 753,2 | 27,8 | 66,0 | 1,3 | 270,0 |
| 23/04/2019 | 15:00 | 752,8 | 27,6 | 65,0 | 1,8 | 258,8 |
| 23/04/2019 | 16:00 | 753,0 | 26,2 | 69,5 | 1,6 | 260,6 |
| 23/04/2019 | 17:00 | 753,4 | 25,1 | 73,0 | 1,3 | 270,0 |
| 23/04/2019 | 18:00 | 753,6 | 23,4 | 75,0 | 0,9 | 258,8 |
| 23/04/2019 | 19:00 | 753,9 | 22,5 | 76,5 | 0,9 | 270,0 |
| 23/04/2019 | 20:00 | 754,2 | 21,9 | 77,5 | 0,6 | 285,6 |
| 23/04/2019 | 21:00 | 754,7 | 21,6 | 78,0 | 0,4 | 292,5 |
| 23/04/2019 | 22:00 | 754,7 | 21,6 | 78,0 | 0,2 | 315,0 |
| 23/04/2019 | 23:00 | 754,5 | 21,7 | 78,0 | 0,4 | 247,5 |
| 24/04/2019 | 00:00 | 754,0 | 21,8 | 78,0 | 0,2 | 135,0 |
| 24/04/2019 | 01:00 | 753,4 | 21,6 | 79,0 | 0,2 | 180,0 |
| 24/04/2019 | 02:00 | 752,9 | 21,3 | 80,5 | 0,4 | 202,5 |
| 24/04/2019 | 03:00 | 753,0 | 21,1 | 82,5 | 0,2 | 292,5 |
| 24/04/2019 | 04:00 | 753,0 | 20,9 | 83,0 | 0,2 | 270,0 |
| 24/04/2019 | 05:00 | 753,0 | 20,8 | 83,0 | 0,2 | 225,0 |
| 24/04/2019 | 06:00 | 753,3 | 20,7 | 83,0 | 0,4 | 247,5 |
| 24/04/2019 | 07:00 | 753,6 | 21,0 | 83,0 | 0,0 | 0,0 |
| 24/04/2019 | 08:00 | 753,7 | 22,2 | 80,5 | 0,4 | 247,5 |
| 24/04/2019 | 09:00 | 754,1 | 23,7 | 75,0 | 1,3 | 270,0 |
| 24/04/2019 | 10:00 | 754,0 | 26,1 | 67,5 | 1,6 | 256,9 |
| 24/04/2019 | 11:00 | 753,7 | 26,9 | 67,0 | 2,0 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 24/04/2019 | 12:00 | 753,5 | 26,7 | 70,0 | 2,2 | 270,0 |
| 24/04/2019 | 13:00 | 753,2 | 26,0 | 70,0 | 2,2 | 258,8 |
| 24/04/2019 | 14:00 | 752,5 | 25,6 | 71,5 | 2,0 | 270,0 |
| 24/04/2019 | 15:00 | 752,0 | 24,6 | 74,0 | 1,8 | 270,0 |
| 24/04/2019 | 16:00 | 751,8 | 23,8 | 74,5 | 1,3 | 270,0 |
| 24/04/2019 | 17:00 | 752,2 | 22,6 | 76,0 | 1,1 | 283,3 |
| 24/04/2019 | 18:00 | 752,6 | 21,9 | 77,5 | 1,1 | 279,2 |
| 24/04/2019 | 19:00 | 752,8 | 22,0 | 77,5 | 0,6 | 276,9 |
| 24/04/2019 | 20:00 | 753,3 | 22,3 | 76,0 | 0,4 | 202,5 |
| 24/04/2019 | 21:00 | 753,7 | 22,0 | 77,5 | 0,4 | 213,7 |
| 24/04/2019 | 22:00 | 753,8 | 21,8 | 78,5 | 0,6 | 260,9 |
| 24/04/2019 | 23:00 | 753,8 | 21,8 | 79,0 | 0,2 | 202,5 |
| 25/04/2019 | 00:00 | 753,4 | 21,6 | 79,5 | 0,0 | 0,0 |
| 25/04/2019 | 01:00 | 752,9 | 21,3 | 79,5 | 0,4 | 191,2 |
| 25/04/2019 | 02:00 | 752,2 | 21,0 | 80,0 | 0,2 | 180,0 |
| 25/04/2019 | 03:00 | 752,1 | 20,9 | 81,0 | 0,4 | 191,2 |
| 25/04/2019 | 04:00 | 752,0 | 20,8 | 81,0 | 0,2 | 225,0 |
| 25/04/2019 | 05:00 | 752,5 | 20,8 | 81,0 | 0,4 | 191,2 |
| 25/04/2019 | 06:00 | 753,1 | 20,7 | 81,5 | 0,4 | 213,7 |
| 25/04/2019 | 07:00 | 753,6 | 21,0 | 82,0 | 0,9 | 247,5 |
| 25/04/2019 | 08:00 | 754,2 | 21,4 | 81,0 | 0,9 | 247,5 |
| 25/04/2019 | 09:00 | 754,3 | 22,0 | 78,5 | 1,3 | 270,0 |
| 25/04/2019 | 10:00 | 754,3 | 24,2 | 72,0 | 1,3 | 270,0 |
| 25/04/2019 | 11:00 | 754,1 | 25,0 | 70,0 | 2,0 | 270,0 |
| 25/04/2019 | 12:00 | 753,6 | 25,5 | 68,5 | 1,3 | 247,5 |
| 25/04/2019 | 13:00 | 753,5 | 26,7 | 65,0 | 1,6 | 238,1 |
| 25/04/2019 | 14:00 | 752,8 | 27,1 | 64,0 | 1,8 | 258,8 |
| 25/04/2019 | 15:00 | 752,4 | 26,5 | 70,0 | 2,0 | 270,0 |
| 25/04/2019 | 16:00 | 752,3 | 25,7 | 71,0 | 1,8 | 270,0 |
| 25/04/2019 | 17:00 | 752,4 | 23,4 | 75,0 | 1,1 | 270,0 |
| 25/04/2019 | 18:00 | 752,9 | 23,6 | 75,0 | 0,6 | 228,2 |
| 25/04/2019 | 19:00 | 753,3 | 22,6 | 76,5 | 0,6 | 209,4 |
| 25/04/2019 | 20:00 | 753,7 | 22,5 | 77,0 | 0,4 | 202,5 |
| 25/04/2019 | 21:00 | 754,0 | 22,1 | 78,0 | 0,6 | 173,1 |
| 25/04/2019 | 22:00 | 754,0 | 21,9 | 78,5 | 0,4 | 225,0 |
| 25/04/2019 | 23:00 | 754,0 | 21,4 | 79,5 | 0,4 | 225,0 |
| 26/04/2019 | 00:00 | 753,8 | 21,0 | 80,5 | 0,4 | 202,5 |
| 26/04/2019 | 01:00 | 753,2 | 20,5 | 80,5 | 0,6 | 292,5 |
| 26/04/2019 | 02:00 | 753,0 | 20,4 | 80,5 | 0,4 | 281,2 |
| 26/04/2019 | 03:00 | 753,0 | 20,4 | 80,5 | 0,4 | 270,0 |
| 26/04/2019 | 04:00 | 753,0 | 20,4 | 81,0 | 0,4 | 236,2 |
| 26/04/2019 | 05:00 | 753,2 | 20,3 | 81,0 | 0,4 | 247,5 |
| 26/04/2019 | 06:00 | 753,5 | 20,2 | 81,0 | 0,4 | 247,5 |
| 26/04/2019 | 07:00 | 753,9 | 20,2 | 81,0 | 0,2 | 270,0 |
| 26/04/2019 | 08:00 | 754,2 | 20,9 | 80,5 | 0,4 | 191,2 |
| 26/04/2019 | 09:00 | 754,5 | 22,5 | 76,0 | 0,8 | 230,2 |
| 26/04/2019 | 10:00 | 754,5 | 24,1 | 71,5 | 1,3 | 236,2 |
| 26/04/2019 | 11:00 | 754,1 | 25,5 | 67,0 | 1,3 | 258,8 |
| 26/04/2019 | 12:00 | 753,2 | 26,1 | 68,5 | 1,6 | 238,1 |
| 26/04/2019 | 13:00 | 752,8 | 25,4 | 72,0 | 1,6 | 225,0 |
| 26/04/2019 | 14:00 | 752,4 | 25,4 | 71,5 | 1,8 | 258,8 |
| 26/04/2019 | 15:00 | 752,0 | 24,9 | 72,5 | 1,6 | 270,0 |
| 26/04/2019 | 16:00 | 751,7 | 24,6 | 74,0 | 1,3 | 270,0 |
| 26/04/2019 | 17:00 | 751,7 | 23,7 | 74,5 | 1,3 | 258,8 |
| 26/04/2019 | 18:00 | 751,9 | 21,6 | 77,0 | 1,6 | 270,0 |
| 26/04/2019 | 19:00 | 752,4 | 21,6 | 77,0 | 0,9 | 292,5 |
| 26/04/2019 | 20:00 | 752,8 | 21,7 | 76,5 | 0,4 | 292,5 |
| 26/04/2019 | 21:00 | 753,2 | 21,7 | 76,0 | 0,6 | 292,5 |
| 26/04/2019 | 22:00 | 753,1 | 21,6 | 76,0 | 0,0 | 0,0 |
| 26/04/2019 | 23:00 | 753,0 | 21,0 | 77,0 | 0,4 | 157,5 |
| 27/04/2019 | 00:00 | 752,8 | 20,4 | 79,0 | 0,9 | 270,0 |
| 27/04/2019 | 01:00 | 752,4 | 20,2 | 79,0 | 0,9 | 270,0 |
| 27/04/2019 | 02:00 | 752,1 | 20,0 | 79,5 | 0,6 | 285,6 |
| 27/04/2019 | 03:00 | 751,9 | 19,9 | 80,0 | 0,6 | 260,9 |
| 27/04/2019 | 04:00 | 752,0 | 19,8 | 80,0 | 0,6 | 202,5 |
| 27/04/2019 | 05:00 | 752,0 | 19,6 | 81,0 | 0,4 | 281,2 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-1

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 27/04/2019 | 06:00 | 752,2 | 19,6 | 80,5 | 0,4 | 225,0 |
| 27/04/2019 | 07:00 | 752,5 | 19,8 | 80,5 | 0,4 | 247,5 |
| 27/04/2019 | 08:00 | 753,0 | 19,9 | 81,0 | 0,6 | 247,5 |
| 27/04/2019 | 09:00 | 753,5 | 20,2 | 80,5 | 0,9 | 270,0 |
| 27/04/2019 | 10:00 | 753,2 | 20,6 | 79,5 | 0,9 | 270,0 |
| 27/04/2019 | 11:00 | 753,0 | 21,5 | 76,5 | 1,3 | 270,0 |
| 27/04/2019 | 12:00 | 752,5 | 22,4 | 74,0 | 1,3 | 270,0 |
| 27/04/2019 | 13:00 | 752,3 | 24,1 | 69,5 | 1,6 | 270,0 |
| 27/04/2019 | 14:00 | 751,5 | 24,0 | 68,5 | 1,6 | 270,0 |
| 27/04/2019 | 15:00 | 751,2 | 23,9 | 69,0 | 1,6 | 270,0 |
| 27/04/2019 | 16:00 | 751,0 | 22,6 | 71,5 | 1,3 | 258,8 |
| 27/04/2019 | 17:00 | 751,0 | 21,0 | 75,0 | 1,1 | 238,3 |
| 27/04/2019 | 18:00 | 751,2 | 20,0 | 78,0 | 0,6 | 250,7 |
| 27/04/2019 | 19:00 | 751,7 | 19,7 | 79,5 | 0,9 | 236,2 |
| 27/04/2019 | 20:00 | 752,4 | 19,4 | 80,5 | 0,4 | 225,0 |
| 27/04/2019 | 21:00 | 752,5 | 19,1 | 81,5 | 0,6 | 209,4 |
| 27/04/2019 | 22:00 | 752,6 | 19,1 | 82,0 | 0,4 | 213,7 |
| 27/04/2019 | 23:00 | 752,3 | 19,1 | 82,0 | 0,4 | 213,7 |
| 28/04/2019 | 00:00 | 752,2 | 18,9 | 83,0 | 0,4 | 225,0 |
| 28/04/2019 | 01:00 | 751,5 | 18,7 | 84,0 | 0,4 | 213,7 |
| 28/04/2019 | 02:00 | 751,2 | 18,6 | 85,0 | 0,2 | 135,0 |
| 28/04/2019 | 03:00 | 751,2 | 18,4 | 85,0 | 0,2 | 135,0 |
| 28/04/2019 | 04:00 | 751,2 | 18,3 | 85,0 | 0,4 | 247,5 |
| 28/04/2019 | 05:00 | 751,7 | 18,2 | 85,0 | 0,4 | 303,8 |
| 28/04/2019 | 06:00 | 751,9 | 18,2 | 85,5 | 0,4 | 292,5 |
| 28/04/2019 | 07:00 | 752,2 | 18,4 | 86,0 | 0,4 | 315,0 |
| 28/04/2019 | 08:00 | 752,8 | 18,8 | 85,0 | 0,4 | 315,0 |
| 28/04/2019 | 09:00 | 753,0 | 19,6 | 83,0 | 0,4 | 236,2 |
| 28/04/2019 | 10:00 | 752,8 | 22,1 | 76,0 | 0,8 | 234,3 |
| 28/04/2019 | 11:00 | 752,5 | 24,4 | 68,0 | 2,0 | 235,1 |
| 28/04/2019 | 12:00 | 752,0 | 23,5 | 71,0 | 2,5 | 167,6 |
| 28/04/2019 | 13:00 | 751,8 | 23,5 | 69,0 | 1,8 | 236,2 |
| 28/04/2019 | 14:00 | 751,4 | 23,0 | 71,0 | 1,3 | 247,5 |
| 28/04/2019 | 15:00 | 750,8 | 23,4 | 70,0 | 1,3 | 247,5 |
| 28/04/2019 | 16:00 | 751,0 | 22,1 | 72,5 | 1,1 | 251,8 |
| 28/04/2019 | 17:00 | 751,3 | 21,0 | 75,0 | 1,1 | 247,5 |
| 28/04/2019 | 18:00 | 751,8 | 20,1 | 78,0 | 0,4 | 213,7 |
| 28/04/2019 | 19:00 | 752,2 | 19,6 | 79,5 | 0,4 | 247,5 |
| 28/04/2019 | 20:00 | 752,7 | 19,5 | 80,5 | 0,4 | 180,0 |
| 28/04/2019 | 21:00 | 753,0 | 19,2 | 81,5 | 0,6 | 215,9 |
| 28/04/2019 | 22:00 | 753,0 | 19,2 | 82,0 | 0,4 | 213,7 |
| 28/04/2019 | 23:00 | 753,0 | 19,2 | 82,0 | 0,4 | 191,2 |
| 29/04/2019 | 00:00 | 753,0 | 19,1 | 82,0 | 0,4 | 213,7 |
| 29/04/2019 | 01:00 | 752,6 | 18,9 | 83,0 | 0,6 | 330,6 |
| 29/04/2019 | 02:00 | 752,6 | 18,9 | 83,0 | 0,6 | 292,5 |
| 29/04/2019 | 03:00 | 752,4 | 18,7 | 84,0 | 0,6 | 358,5 |
| 29/04/2019 | 04:00 | 752,2 | 18,7 | 84,0 | 0,4 | 281,2 |
| 29/04/2019 | 05:00 | 752,4 | 18,7 | 84,5 | 0,9 | 315,0 |
| 29/04/2019 | 06:00 | 752,8 | 18,9 | 84,0 | 0,2 | 22,5 |
| 29/04/2019 | 07:00 | 753,3 | 18,9 | 84,5 | 0,9 | 292,5 |
| 29/04/2019 | 08:00 | 753,8 | 19,3 | 83,5 | 1,1 | 279,2 |
| 29/04/2019 | 09:00 | 753,8 | 20,2 | 81,0 | 0,6 | 283,4 |
| 29/04/2019 | 10:00 | 754,0 | 22,5 | 74,0 | 0,8 | 197,3 |
| 29/04/2019 | 11:00 | 753,7 | 24,4 | 68,5 | 1,3 | 213,7 |
| 29/04/2019 | 12:00 | 753,5 | 25,4 | 66,0 | 1,6 | 242,4 |
| 29/04/2019 | 13:00 | 752,5 | 26,3 | 63,5 | 1,3 | 247,5 |
| 29/04/2019 | 14:00 | 752,1 | 25,8 | 64,0 | 1,8 | 247,5 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 08/04/2019 | 00:00 | | | | | |
| 08/04/2019 | 01:00 | | | | | |
| 08/04/2019 | 02:00 | | | | | |
| 08/04/2019 | 03:00 | | | | | |
| 08/04/2019 | 04:00 | | | | | |
| 08/04/2019 | 05:00 | | | | | |
| 08/04/2019 | 06:00 | | | | | |
| 08/04/2019 | 07:00 | | | | | |
| 08/04/2019 | 08:00 | | | | | |
| 08/04/2019 | 09:00 | | | | | |
| 08/04/2019 | 10:00 | | | | | |
| 08/04/2019 | 11:00 | | | | | |
| 08/04/2019 | 12:00 | | | | | |
| 08/04/2019 | 13:00 | 756,5 | 27,7 | 66,5 | 2,2 | 138,6 |
| 08/04/2019 | 14:00 | 756,1 | 28,1 | 63,5 | 1,8 | 213,7 |
| 08/04/2019 | 15:00 | 755,9 | 27,2 | 65,5 | 1,8 | 270,0 |
| 08/04/2019 | 16:00 | 756,1 | 26,1 | 68,5 | 1,6 | 242,4 |
| 08/04/2019 | 17:00 | 756,2 | 24,9 | 71,0 | 1,3 | 270,0 |
| 08/04/2019 | 18:00 | 756,8 | 23,9 | 73,0 | 1,3 | 270,0 |
| 08/04/2019 | 19:00 | 757,4 | 23,0 | 75,0 | 1,1 | 279,2 |
| 08/04/2019 | 20:00 | 757,7 | 23,0 | 75,0 | 0,6 | 240,6 |
| 08/04/2019 | 21:00 | 757,9 | 22,8 | 76,0 | 0,9 | 292,5 |
| 08/04/2019 | 22:00 | 757,8 | 22,5 | 76,5 | 0,9 | 292,5 |
| 08/04/2019 | 23:00 | 757,7 | 22,3 | 77,5 | 0,4 | 270,0 |
| 09/04/2019 | 00:00 | 757,5 | 21,9 | 79,0 | 0,6 | 244,3 |
| 09/04/2019 | 01:00 | 757,0 | 21,6 | 80,0 | 0,4 | 225,0 |
| 09/04/2019 | 02:00 | 756,6 | 21,1 | 80,5 | 0,4 | 225,0 |
| 09/04/2019 | 03:00 | 756,5 | 20,8 | 82,0 | 0,4 | 225,0 |
| 09/04/2019 | 04:00 | 756,8 | 20,8 | 81,0 | 0,4 | 270,0 |
| 09/04/2019 | 05:00 | 757,0 | 20,3 | 82,5 | 0,4 | 270,0 |
| 09/04/2019 | 06:00 | 757,4 | 20,1 | 84,0 | 0,2 | 225,0 |
| 09/04/2019 | 07:00 | 757,8 | 20,8 | 82,5 | 0,6 | 273,2 |
| 09/04/2019 | 08:00 | 758,2 | 22,4 | 77,5 | 0,4 | 281,2 |
| 09/04/2019 | 09:00 | 758,3 | 23,9 | 73,0 | 1,1 | 270,0 |
| 09/04/2019 | 10:00 | 758,3 | 24,6 | 70,5 | 1,6 | 242,4 |
| 09/04/2019 | 11:00 | 758,0 | 25,5 | 66,5 | 1,6 | 256,9 |
| 09/04/2019 | 12:00 | 757,4 | 26,6 | 63,0 | 1,6 | 189,4 |
| 09/04/2019 | 13:00 | 756,9 | 26,8 | 61,0 | 2,2 | 202,5 |
| 09/04/2019 | 14:00 | 756,1 | 26,9 | 60,5 | 2,5 | 180,0 |
| 09/04/2019 | 15:00 | 755,9 | 26,3 | 61,5 | 2,5 | 190,1 |
| 09/04/2019 | 16:00 | 756,0 | 26,0 | 61,0 | 2,2 | 180,0 |
| 09/04/2019 | 17:00 | 756,2 | 25,1 | 63,0 | 2,2 | 135,0 |
| 09/04/2019 | 18:00 | 756,7 | 23,7 | 68,0 | 1,8 | 180,0 |
| 09/04/2019 | 19:00 | 757,2 | 23,0 | 70,5 | 1,3 | 157,5 |
| 09/04/2019 | 20:00 | 757,5 | 22,9 | 70,5 | 1,3 | 123,8 |
| 09/04/2019 | 21:00 | 757,7 | 22,7 | 72,0 | 1,3 | 135,0 |
| 09/04/2019 | 22:00 | 757,8 | 22,2 | 73,5 | 0,9 | 180,0 |
| 09/04/2019 | 23:00 | 757,5 | 21,6 | 74,5 | 0,6 | 268,5 |
| 10/04/2019 | 00:00 | 757,4 | 21,2 | 75,5 | 0,4 | 292,5 |
| 10/04/2019 | 01:00 | 757,2 | 21,2 | 74,0 | 0,4 | 168,7 |
| 10/04/2019 | 02:00 | 757,0 | 20,7 | 75,5 | 0,6 | 263,1 |
| 10/04/2019 | 03:00 | 757,0 | 20,0 | 78,0 | 0,4 | 270,0 |
| 10/04/2019 | 04:00 | 757,2 | 19,7 | 79,5 | 0,2 | 270,0 |
| 10/04/2019 | 05:00 | 757,2 | 19,8 | 80,5 | 0,0 | 0,0 |
| 10/04/2019 | 06:00 | 757,7 | 19,9 | 79,5 | 0,4 | 270,0 |
| 10/04/2019 | 07:00 | 758,0 | 20,5 | 78,5 | 0,2 | 247,5 |
| 10/04/2019 | 08:00 | 758,3 | 21,7 | 75,0 | 0,6 | 247,5 |
| 10/04/2019 | 09:00 | 758,5 | 22,7 | 71,5 | 1,3 | 225,0 |
| 10/04/2019 | 10:00 | 758,5 | 23,6 | 69,5 | 1,3 | 213,7 |
| 10/04/2019 | 11:00 | 758,3 | 23,9 | 69,5 | 1,8 | 202,5 |
| 10/04/2019 | 12:00 | 757,8 | 24,4 | 68,0 | 1,8 | 202,5 |
| 10/04/2019 | 13:00 | 757,2 | 24,8 | 67,0 | 1,8 | 202,5 |
| 10/04/2019 | 14:00 | 756,6 | 24,4 | 68,0 | 1,8 | 225,0 |
| 10/04/2019 | 15:00 | 756,3 | 24,2 | 67,5 | 1,8 | 202,5 |
| 10/04/2019 | 16:00 | 756,2 | 23,9 | 68,5 | 1,8 | 247,5 |
| 10/04/2019 | 17:00 | 756,6 | 23,4 | 69,5 | 1,6 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 10/04/2019 | 18:00 | 757,0 | 22,4 | 73,5 | 0,9 | 213,7 |
| 10/04/2019 | 19:00 | 757,3 | 21,6 | 76,5 | 0,8 | 259,9 |
| 10/04/2019 | 20:00 | 757,5 | 21,6 | 75,5 | 0,6 | 268,5 |
| 10/04/2019 | 21:00 | 757,7 | 21,6 | 75,5 | 0,6 | 276,4 |
| 10/04/2019 | 22:00 | 757,3 | 21,1 | 77,0 | 0,6 | 292,5 |
| 10/04/2019 | 23:00 | 757,3 | 20,9 | 77,0 | 0,9 | 303,8 |
| 11/04/2019 | 00:00 | 757,1 | 20,8 | 77,0 | 0,6 | 301,6 |
| 11/04/2019 | 01:00 | 756,7 | 20,3 | 78,5 | 0,6 | 270,0 |
| 11/04/2019 | 02:00 | 756,3 | 20,0 | 80,5 | 0,4 | 315,0 |
| 11/04/2019 | 03:00 | 756,3 | 19,7 | 81,5 | 0,2 | 225,0 |
| 11/04/2019 | 04:00 | 756,2 | 19,5 | 81,0 | 0,4 | 225,0 |
| 11/04/2019 | 05:00 | 756,3 | 19,5 | 81,0 | 0,2 | 270,0 |
| 11/04/2019 | 06:00 | 756,8 | 19,6 | 81,0 | 0,0 | 0,0 |
| 11/04/2019 | 07:00 | 757,2 | 20,2 | 79,5 | 0,2 | 225,0 |
| 11/04/2019 | 08:00 | 757,5 | 21,6 | 75,5 | 0,6 | 250,7 |
| 11/04/2019 | 09:00 | 757,5 | 23,2 | 71,5 | 0,9 | 202,5 |
| 11/04/2019 | 10:00 | 757,6 | 24,5 | 68,0 | 1,3 | 236,2 |
| 11/04/2019 | 11:00 | 757,1 | 25,1 | 66,0 | 1,6 | 242,4 |
| 11/04/2019 | 12:00 | 756,8 | 24,9 | 67,0 | 2,0 | 222,6 |
| 11/04/2019 | 13:00 | 756,5 | 25,1 | 64,5 | 1,8 | 270,0 |
| 11/04/2019 | 14:00 | 755,5 | 26,2 | 61,5 | 1,8 | 270,0 |
| 11/04/2019 | 15:00 | 755,2 | 27,0 | 55,0 | 1,8 | 246,0 |
| 11/04/2019 | 16:00 | 755,3 | 26,6 | 57,0 | 1,6 | 189,4 |
| 11/04/2019 | 17:00 | 755,6 | 25,6 | 61,5 | 1,3 | 180,0 |
| 11/04/2019 | 18:00 | 755,7 | 23,2 | 69,0 | 1,3 | 292,5 |
| 11/04/2019 | 19:00 | 755,8 | 22,6 | 70,5 | 1,1 | 292,5 |
| 11/04/2019 | 20:00 | 756,0 | 22,2 | 72,5 | 0,9 | 303,8 |
| 11/04/2019 | 21:00 | 756,2 | 21,9 | 73,5 | 0,6 | 276,9 |
| 11/04/2019 | 22:00 | 756,2 | 21,4 | 75,0 | 0,4 | 247,5 |
| 11/04/2019 | 23:00 | 756,2 | 21,1 | 76,5 | 0,4 | 258,8 |
| 12/04/2019 | 00:00 | 755,8 | 20,8 | 78,0 | 0,4 | 281,2 |
| 12/04/2019 | 01:00 | 755,7 | 20,4 | 79,0 | 0,4 | 270,0 |
| 12/04/2019 | 02:00 | 755,7 | 20,1 | 80,0 | 0,2 | 202,5 |
| 12/04/2019 | 03:00 | 755,8 | 19,8 | 81,0 | 0,4 | 213,7 |
| 12/04/2019 | 04:00 | 756,0 | 19,6 | 81,5 | 0,2 | 225,0 |
| 12/04/2019 | 05:00 | 756,0 | 19,6 | 82,0 | 0,2 | 225,0 |
| 12/04/2019 | 06:00 | 756,5 | 19,7 | 81,5 | 0,0 | 0,0 |
| 12/04/2019 | 07:00 | 757,0 | 20,1 | 81,0 | 0,4 | 247,5 |
| 12/04/2019 | 08:00 | 757,6 | 21,5 | 77,0 | 0,6 | 263,1 |
| 12/04/2019 | 09:00 | 757,6 | 22,9 | 72,0 | 1,1 | 229,3 |
| 12/04/2019 | 10:00 | 757,4 | 24,6 | 65,5 | 1,3 | 270,0 |
| 12/04/2019 | 11:00 | 756,7 | 25,8 | 61,5 | 1,8 | 270,0 |
| 12/04/2019 | 12:00 | 756,2 | 26,2 | 60,5 | 2,0 | 240,1 |
| 12/04/2019 | 13:00 | 755,8 | 26,6 | 58,0 | 2,2 | 270,0 |
| 12/04/2019 | 14:00 | 755,3 | 26,3 | 57,0 | 2,0 | 259,9 |
| 12/04/2019 | 15:00 | 754,9 | 26,8 | 54,5 | 2,0 | 230,7 |
| 12/04/2019 | 16:00 | 755,0 | 25,6 | 61,0 | 1,8 | 157,5 |
| 12/04/2019 | 17:00 | 755,0 | 25,2 | 60,0 | 1,4 | 202,5 |
| 12/04/2019 | 18:00 | 755,2 | 24,2 | 62,0 | 1,1 | 214,7 |
| 12/04/2019 | 19:00 | 755,5 | 24,1 | 63,0 | 0,9 | 168,7 |
| 12/04/2019 | 20:00 | 756,0 | 22,9 | 67,5 | 1,1 | 270,0 |
| 12/04/2019 | 21:00 | 756,0 | 22,0 | 69,5 | 0,6 | 256,6 |
| 12/04/2019 | 22:00 | 756,2 | 21,7 | 71,5 | 0,6 | 215,9 |
| 12/04/2019 | 23:00 | 756,3 | 21,2 | 73,5 | 0,6 | 279,1 |
| 13/04/2019 | 00:00 | 756,2 | 20,7 | 75,5 | 0,4 | 180,0 |
| 13/04/2019 | 01:00 | 756,2 | 20,2 | 77,5 | 0,4 | 180,0 |
| 13/04/2019 | 02:00 | 756,0 | 19,9 | 78,5 | 0,4 | 225,0 |
| 13/04/2019 | 03:00 | 756,2 | 19,7 | 80,5 | 0,4 | 225,0 |
| 13/04/2019 | 04:00 | 756,2 | 19,6 | 79,5 | 0,4 | 247,5 |
| 13/04/2019 | 05:00 | 756,3 | 19,6 | 81,0 | 0,0 | 0,0 |
| 13/04/2019 | 06:00 | 756,8 | 19,7 | 81,0 | 0,4 | 247,5 |
| 13/04/2019 | 07:00 | 757,4 | 20,2 | 80,0 | 0,4 | 225,0 |
| 13/04/2019 | 08:00 | 757,8 | 21,4 | 76,0 | 0,6 | 209,4 |
| 13/04/2019 | 09:00 | 757,7 | 23,1 | 70,0 | 1,1 | 270,0 |
| 13/04/2019 | 10:00 | 757,8 | 24,4 | 65,5 | 1,3 | 191,2 |
| 13/04/2019 | 11:00 | 757,1 | 25,4 | 61,5 | 1,6 | 202,5 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 13/04/2019 | 12:00 | 756,7 | 25,4 | 60,0 | 1,8 | 225,0 |
| 13/04/2019 | 13:00 | 756,0 | 25,9 | 57,5 | 2,0 | 270,0 |
| 13/04/2019 | 14:00 | 755,4 | 26,2 | 57,0 | 1,8 | 225,0 |
| 13/04/2019 | 15:00 | 755,1 | 26,1 | 58,5 | 1,8 | 191,2 |
| 13/04/2019 | 16:00 | 755,2 | 24,4 | 63,5 | 2,0 | 180,0 |
| 13/04/2019 | 17:00 | 755,3 | 24,4 | 64,5 | 1,3 | 180,0 |
| 13/04/2019 | 18:00 | 755,5 | 22,6 | 69,0 | 1,1 | 270,0 |
| 13/04/2019 | 19:00 | 755,9 | 22,0 | 71,5 | 1,3 | 292,5 |
| 13/04/2019 | 20:00 | 756,2 | 21,6 | 73,0 | 1,3 | 303,8 |
| 13/04/2019 | 21:00 | 756,5 | 21,3 | 74,0 | 1,1 | 292,5 |
| 13/04/2019 | 22:00 | 756,5 | 21,2 | 74,5 | 0,6 | 285,6 |
| 13/04/2019 | 23:00 | 756,5 | 20,8 | 75,5 | 0,6 | 225,0 |
| 14/04/2019 | 00:00 | 756,5 | 20,5 | 76,5 | 0,4 | 281,2 |
| 14/04/2019 | 01:00 | 756,2 | 19,8 | 80,0 | 0,4 | 236,2 |
| 14/04/2019 | 02:00 | 756,1 | 19,4 | 81,5 | 0,4 | 247,5 |
| 14/04/2019 | 03:00 | 755,7 | 19,2 | 83,5 | 0,4 | 247,5 |
| 14/04/2019 | 04:00 | 755,5 | 19,2 | 84,0 | 0,4 | 247,5 |
| 14/04/2019 | 05:00 | 755,8 | 19,1 | 84,0 | 0,4 | 247,5 |
| 14/04/2019 | 06:00 | 756,3 | 18,9 | 85,0 | 0,4 | 247,5 |
| 14/04/2019 | 07:00 | 756,9 | 19,4 | 84,5 | 0,4 | 247,5 |
| 14/04/2019 | 08:00 | 757,3 | 20,9 | 79,5 | 0,4 | 258,8 |
| 14/04/2019 | 09:00 | 757,5 | 22,9 | 72,0 | 1,1 | 256,7 |
| 14/04/2019 | 10:00 | 757,7 | 23,9 | 70,0 | 1,3 | 202,5 |
| 14/04/2019 | 11:00 | 757,7 | 24,3 | 67,0 | 1,6 | 230,1 |
| 14/04/2019 | 12:00 | 757,0 | 25,1 | 64,5 | 1,6 | 221,2 |
| 14/04/2019 | 13:00 | 756,7 | 25,1 | 65,5 | 1,8 | 270,0 |
| 14/04/2019 | 14:00 | 756,0 | 25,1 | 64,5 | 1,6 | 228,8 |
| 14/04/2019 | 15:00 | 755,5 | 25,4 | 60,5 | 1,6 | 242,4 |
| 14/04/2019 | 16:00 | 755,5 | 24,8 | 63,0 | 1,3 | 191,2 |
| 14/04/2019 | 17:00 | 755,7 | 23,9 | 68,0 | 1,6 | 270,0 |
| 14/04/2019 | 18:00 | 756,0 | 22,2 | 73,0 | 1,6 | 279,4 |
| 14/04/2019 | 19:00 | 756,3 | 21,6 | 75,0 | 1,1 | 305,8 |
| 14/04/2019 | 20:00 | 756,7 | 21,6 | 75,0 | 0,6 | 292,5 |
| 14/04/2019 | 21:00 | 756,8 | 21,6 | 74,0 | 0,4 | 270,0 |
| 14/04/2019 | 22:00 | 756,8 | 21,2 | 75,5 | 0,9 | 281,2 |
| 14/04/2019 | 23:00 | 756,8 | 20,9 | 76,5 | 0,9 | 303,8 |
| 15/04/2019 | 00:00 | 756,6 | 20,6 | 78,0 | 0,4 | 281,2 |
| 15/04/2019 | 01:00 | 756,2 | 20,3 | 79,0 | 0,4 | 258,8 |
| 15/04/2019 | 02:00 | 756,0 | 19,9 | 80,5 | 0,4 | 270,0 |
| 15/04/2019 | 03:00 | 755,9 | 19,4 | 83,5 | 0,6 | 202,5 |
| 15/04/2019 | 04:00 | 755,8 | 19,2 | 84,0 | 0,4 | 225,0 |
| 15/04/2019 | 05:00 | 756,1 | 19,2 | 85,0 | 0,2 | 225,0 |
| 15/04/2019 | 06:00 | 756,6 | 19,1 | 86,0 | 0,4 | 225,0 |
| 15/04/2019 | 07:00 | 757,4 | 19,6 | 85,0 | 0,2 | 225,0 |
| 15/04/2019 | 08:00 | 757,8 | 20,9 | 80,5 | 0,4 | 258,8 |
| 15/04/2019 | 09:00 | 758,0 | 23,0 | 73,5 | 1,1 | 247,5 |
| 15/04/2019 | 10:00 | 757,8 | 24,2 | 69,5 | 1,3 | 225,0 |
| 15/04/2019 | 11:00 | 757,6 | 25,0 | 66,5 | 1,6 | 242,4 |
| 15/04/2019 | 12:00 | 757,2 | 25,3 | 65,0 | 1,6 | 219,9 |
| 15/04/2019 | 13:00 | 757,0 | 25,6 | 63,5 | 1,8 | 247,5 |
| 15/04/2019 | 14:00 | 756,3 | 25,8 | 61,5 | 1,6 | 270,0 |
| 15/04/2019 | 15:00 | 755,8 | 25,6 | 63,0 | 1,6 | 242,4 |
| 15/04/2019 | 16:00 | 755,8 | 25,0 | 64,5 | 1,8 | 270,0 |
| 15/04/2019 | 17:00 | 755,8 | 24,1 | 67,0 | 1,8 | 281,2 |
| 15/04/2019 | 18:00 | 756,0 | 23,1 | 70,0 | 1,4 | 285,0 |
| 15/04/2019 | 19:00 | 756,5 | 22,8 | 70,0 | 0,4 | 281,2 |
| 15/04/2019 | 20:00 | 757,1 | 22,5 | 71,5 | 0,6 | 285,6 |
| 15/04/2019 | 21:00 | 757,5 | 22,0 | 74,5 | 0,9 | 315,0 |
| 15/04/2019 | 22:00 | 757,7 | 21,5 | 76,5 | 0,4 | 258,8 |
| 15/04/2019 | 23:00 | 757,8 | 21,0 | 77,5 | 0,4 | 213,7 |
| 16/04/2019 | 00:00 | 757,7 | 20,8 | 78,5 | 0,4 | 281,2 |
| 16/04/2019 | 01:00 | 757,2 | 20,4 | 79,5 | 0,4 | 247,5 |
| 16/04/2019 | 02:00 | 756,6 | 20,3 | 80,0 | 0,2 | 225,0 |
| 16/04/2019 | 03:00 | 756,5 | 20,4 | 80,0 | 0,4 | 225,0 |
| 16/04/2019 | 04:00 | 756,4 | 20,0 | 82,0 | 0,4 | 258,8 |
| 16/04/2019 | 05:00 | 756,3 | 19,3 | 84,5 | 0,4 | 247,5 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 16/04/2019 | 06:00 | 756,6 | 19,2 | 85,0 | 0,0 | 0,0 |
| 16/04/2019 | 07:00 | 757,1 | 19,5 | 85,5 | 0,4 | 225,0 |
| 16/04/2019 | 08:00 | 757,7 | 20,9 | 81,0 | 0,9 | 270,0 |
| 16/04/2019 | 09:00 | 757,8 | 23,0 | 74,0 | 0,9 | 258,8 |
| 16/04/2019 | 10:00 | 757,9 | 24,6 | 69,0 | 1,3 | 270,0 |
| 16/04/2019 | 11:00 | 757,8 | 24,2 | 69,5 | 1,3 | 236,2 |
| 16/04/2019 | 12:00 | 757,1 | 24,9 | 67,5 | 1,1 | 229,3 |
| 16/04/2019 | 13:00 | 756,5 | 25,5 | 65,0 | 1,3 | 202,5 |
| 16/04/2019 | 14:00 | 755,9 | 25,2 | 66,0 | 1,3 | 236,2 |
| 16/04/2019 | 15:00 | 755,4 | 24,9 | 66,5 | 1,3 | 236,2 |
| 16/04/2019 | 16:00 | 755,2 | 24,9 | 66,5 | 1,3 | 236,2 |
| 16/04/2019 | 17:00 | 755,6 | 23,8 | 68,0 | 1,3 | 270,0 |
| 16/04/2019 | 18:00 | 756,0 | 22,1 | 74,0 | 1,6 | 270,0 |
| 16/04/2019 | 19:00 | 756,2 | 21,9 | 76,0 | 0,9 | 281,2 |
| 16/04/2019 | 20:00 | 756,9 | 21,6 | 77,5 | 0,9 | 303,8 |
| 16/04/2019 | 21:00 | 757,2 | 21,6 | 77,0 | 0,9 | 292,5 |
| 16/04/2019 | 22:00 | 757,0 | 21,5 | 77,0 | 0,6 | 285,6 |
| 16/04/2019 | 23:00 | 756,9 | 21,3 | 77,0 | 0,6 | 256,6 |
| 17/04/2019 | 00:00 | 756,8 | 20,9 | 78,5 | 0,6 | 266,8 |
| 17/04/2019 | 01:00 | 756,5 | 20,5 | 80,0 | 0,4 | 247,5 |
| 17/04/2019 | 02:00 | 756,2 | 20,2 | 81,5 | 0,6 | 240,6 |
| 17/04/2019 | 03:00 | 756,0 | 19,9 | 82,5 | 0,4 | 258,8 |
| 17/04/2019 | 04:00 | 756,0 | 19,6 | 84,0 | 0,4 | 247,5 |
| 17/04/2019 | 05:00 | 756,1 | 19,5 | 84,0 | 0,4 | 258,8 |
| 17/04/2019 | 06:00 | 756,6 | 19,6 | 84,5 | 0,4 | 270,0 |
| 17/04/2019 | 07:00 | 757,1 | 19,9 | 83,5 | 0,4 | 247,5 |
| 17/04/2019 | 08:00 | 757,4 | 21,5 | 79,0 | 0,4 | 225,0 |
| 17/04/2019 | 09:00 | 757,6 | 23,4 | 73,0 | 1,1 | 256,7 |
| 17/04/2019 | 10:00 | 757,6 | 24,3 | 69,0 | 1,6 | 270,0 |
| 17/04/2019 | 11:00 | 757,3 | 24,9 | 65,5 | 1,8 | 236,2 |
| 17/04/2019 | 12:00 | 756,8 | 26,0 | 63,0 | 1,6 | 270,0 |
| 17/04/2019 | 13:00 | 756,5 | 25,2 | 64,0 | 1,8 | 270,0 |
| 17/04/2019 | 14:00 | 755,6 | 24,7 | 65,5 | 1,3 | 270,0 |
| 17/04/2019 | 15:00 | 755,3 | 24,2 | 67,0 | 1,3 | 258,8 |
| 17/04/2019 | 16:00 | 755,5 | 23,2 | 70,0 | 1,6 | 243,7 |
| 17/04/2019 | 17:00 | 755,6 | 23,2 | 70,0 | 1,3 | 270,0 |
| 17/04/2019 | 18:00 | 755,8 | 22,0 | 74,5 | 0,9 | 258,8 |
| 17/04/2019 | 19:00 | 756,2 | 21,3 | 76,5 | 0,9 | 270,0 |
| 17/04/2019 | 20:00 | 756,6 | 21,3 | 77,0 | 0,9 | 281,2 |
| 17/04/2019 | 21:00 | 756,8 | 21,1 | 78,0 | 0,9 | 281,2 |
| 17/04/2019 | 22:00 | 756,8 | 20,9 | 79,0 | 0,4 | 270,0 |
| 17/04/2019 | 23:00 | 756,7 | 20,6 | 80,5 | 0,4 | 236,2 |
| 18/04/2019 | 00:00 | 756,6 | 20,4 | 81,5 | 0,4 | 247,5 |
| 18/04/2019 | 01:00 | 756,2 | 20,0 | 83,5 | 0,4 | 236,2 |
| 18/04/2019 | 02:00 | 756,0 | 19,6 | 84,5 | 0,4 | 213,7 |
| 18/04/2019 | 03:00 | 755,8 | 19,5 | 85,0 | 0,4 | 225,0 |
| 18/04/2019 | 04:00 | 755,7 | 19,4 | 85,0 | 0,4 | 247,5 |
| 18/04/2019 | 05:00 | 755,6 | 19,5 | 84,0 | 0,2 | 225,0 |
| 18/04/2019 | 06:00 | 756,0 | 19,4 | 83,5 | 0,4 | 247,5 |
| 18/04/2019 | 07:00 | 756,6 | 19,8 | 83,5 | 0,4 | 225,0 |
| 18/04/2019 | 08:00 | 757,0 | 20,6 | 81,0 | 0,4 | 236,2 |
| 18/04/2019 | 09:00 | 757,4 | 22,6 | 75,5 | 0,6 | 202,5 |
| 18/04/2019 | 10:00 | 757,6 | 23,0 | 73,5 | 1,6 | 193,1 |
| 18/04/2019 | 11:00 | 757,2 | 24,1 | 68,5 | 1,3 | 225,0 |
| 18/04/2019 | 12:00 | 756,8 | 24,1 | 68,0 | 1,8 | 247,5 |
| 18/04/2019 | 13:00 | 756,1 | 24,1 | 68,0 | 1,6 | 228,8 |
| 18/04/2019 | 14:00 | 755,8 | 23,6 | 68,0 | 1,8 | 225,0 |
| 18/04/2019 | 15:00 | 755,3 | 23,9 | 68,5 | 1,3 | 236,2 |
| 18/04/2019 | 16:00 | 755,2 | 24,3 | 66,0 | 1,1 | 256,7 |
| 18/04/2019 | 17:00 | 755,5 | 22,8 | 71,0 | 0,9 | 270,0 |
| 18/04/2019 | 18:00 | 755,7 | 21,6 | 75,0 | 0,9 | 258,8 |
| 18/04/2019 | 19:00 | 756,0 | 21,0 | 79,0 | 0,6 | 270,0 |
| 18/04/2019 | 20:00 | 756,6 | 20,6 | 81,5 | 0,4 | 225,0 |
| 18/04/2019 | 21:00 | 756,8 | 20,3 | 82,0 | 0,9 | 236,2 |
| 18/04/2019 | 22:00 | 757,0 | 20,2 | 82,5 | 0,4 | 247,5 |
| 18/04/2019 | 23:00 | 757,0 | 20,3 | 83,0 | 0,6 | 299,4 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 19/04/2019 | 00:00 | 756,8 | 20,6 | 81,5 | 0,2 | 247,5 |
| 19/04/2019 | 01:00 | 756,4 | 20,2 | 83,5 | 0,4 | 270,0 |
| 19/04/2019 | 02:00 | 756,3 | 20,2 | 84,0 | 0,6 | 256,6 |
| 19/04/2019 | 03:00 | 756,2 | 20,2 | 83,5 | 0,4 | 213,7 |
| 19/04/2019 | 04:00 | 756,2 | 20,2 | 83,0 | 0,4 | 281,2 |
| 19/04/2019 | 05:00 | 756,2 | 19,9 | 83,0 | 0,2 | 225,0 |
| 19/04/2019 | 06:00 | 756,6 | 19,6 | 83,5 | 0,6 | 256,6 |
| 19/04/2019 | 07:00 | 757,2 | 20,0 | 83,5 | 0,2 | 247,5 |
| 19/04/2019 | 08:00 | 757,9 | 21,1 | 81,0 | 0,6 | 209,4 |
| 19/04/2019 | 09:00 | 758,5 | 22,4 | 76,5 | 1,6 | 202,5 |
| 19/04/2019 | 10:00 | 758,5 | 22,9 | 74,0 | 1,6 | 193,1 |
| 19/04/2019 | 11:00 | 758,4 | 23,6 | 71,5 | 1,8 | 213,7 |
| 19/04/2019 | 12:00 | 757,9 | 24,6 | 68,0 | 1,8 | 236,2 |
| 19/04/2019 | 13:00 | 757,3 | 24,8 | 66,5 | 2,0 | 214,9 |
| 19/04/2019 | 14:00 | 757,0 | 24,2 | 68,0 | 1,8 | 180,0 |
| 19/04/2019 | 15:00 | 756,7 | 24,3 | 67,5 | 1,3 | 202,5 |
| 19/04/2019 | 16:00 | 756,6 | 23,9 | 69,0 | 1,3 | 247,5 |
| 19/04/2019 | 17:00 | 756,7 | 23,2 | 71,5 | 0,9 | 258,8 |
| 19/04/2019 | 18:00 | 756,9 | 21,5 | 77,0 | 0,9 | 213,7 |
| 19/04/2019 | 19:00 | 757,4 | 20,9 | 79,0 | 0,9 | 258,8 |
| 19/04/2019 | 20:00 | 757,8 | 20,9 | 79,0 | 0,4 | 247,5 |
| 19/04/2019 | 21:00 | 757,8 | 21,2 | 78,0 | 0,2 | 225,0 |
| 19/04/2019 | 22:00 | 757,5 | 20,9 | 79,5 | 0,4 | 258,8 |
| 19/04/2019 | 23:00 | 757,7 | 20,8 | 81,0 | 0,6 | 270,0 |
| 20/04/2019 | 00:00 | 757,7 | 20,7 | 81,5 | 0,4 | 270,0 |
| 20/04/2019 | 01:00 | 757,5 | 20,4 | 82,5 | 0,4 | 270,0 |
| 20/04/2019 | 02:00 | 757,2 | 20,4 | 82,0 | 0,4 | 270,0 |
| 20/04/2019 | 03:00 | 756,9 | 20,2 | 82,5 | 0,0 | 0,0 |
| 20/04/2019 | 04:00 | 756,7 | 20,1 | 82,5 | 0,2 | 270,0 |
| 20/04/2019 | 05:00 | 756,8 | 19,9 | 86,5 | 0,4 | 225,0 |
| 20/04/2019 | 06:00 | 757,1 | 20,1 | 87,0 | 0,2 | 225,0 |
| 20/04/2019 | 07:00 | 757,7 | 20,5 | 84,5 | 0,4 | 225,0 |
| 20/04/2019 | 08:00 | 758,3 | 21,1 | 82,0 | 0,6 | 270,0 |
| 20/04/2019 | 09:00 | 758,6 | 22,7 | 77,0 | 0,9 | 202,5 |
| 20/04/2019 | 10:00 | 758,7 | 24,3 | 72,5 | 1,3 | 258,8 |
| 20/04/2019 | 11:00 | 758,4 | 24,9 | 68,5 | 1,3 | 225,0 |
| 20/04/2019 | 12:00 | 757,9 | 25,4 | 66,5 | 1,6 | 211,9 |
| 20/04/2019 | 13:00 | 757,8 | 25,2 | 67,0 | 1,8 | 225,0 |
| 20/04/2019 | 14:00 | 757,3 | 25,8 | 62,5 | 1,6 | 234,2 |
| 20/04/2019 | 15:00 | 757,0 | 25,4 | 65,0 | 1,8 | 191,2 |
| 20/04/2019 | 16:00 | 756,6 | 25,0 | 67,0 | 1,3 | 247,5 |
| 20/04/2019 | 17:00 | 756,8 | 23,6 | 71,0 | 1,1 | 220,7 |
| 20/04/2019 | 18:00 | 757,0 | 22,5 | 74,5 | 0,9 | 225,0 |
| 20/04/2019 | 19:00 | 757,5 | 21,8 | 77,5 | 0,6 | 260,9 |
| 20/04/2019 | 20:00 | 757,9 | 21,6 | 78,0 | 0,4 | 247,5 |
| 20/04/2019 | 21:00 | 758,2 | 21,4 | 80,5 | 0,4 | 258,8 |
| 20/04/2019 | 22:00 | 758,2 | 21,4 | 81,0 | 0,6 | 285,6 |
| 20/04/2019 | 23:00 | 758,2 | 21,6 | 79,5 | 0,2 | 270,0 |
| 21/04/2019 | 00:00 | 757,8 | 21,3 | 82,5 | 0,6 | 268,5 |
| 21/04/2019 | 01:00 | 757,4 | 20,9 | 83,5 | 0,6 | 270,0 |
| 21/04/2019 | 02:00 | 757,2 | 20,9 | 83,5 | 0,4 | 191,2 |
| 21/04/2019 | 03:00 | 757,0 | 20,9 | 83,0 | 0,4 | 236,2 |
| 21/04/2019 | 04:00 | 757,0 | 20,7 | 83,0 | 0,4 | 270,0 |
| 21/04/2019 | 05:00 | 757,0 | 20,2 | 83,5 | 0,4 | 258,8 |
| 21/04/2019 | 06:00 | 757,5 | 20,1 | 85,0 | 0,4 | 213,7 |
| 21/04/2019 | 07:00 | 757,8 | 20,5 | 84,0 | 0,2 | 247,5 |
| 21/04/2019 | 08:00 | 758,5 | 21,2 | 81,5 | 0,9 | 202,5 |
| 21/04/2019 | 09:00 | 758,5 | 23,1 | 76,5 | 0,6 | 292,5 |
| 21/04/2019 | 10:00 | 758,7 | 24,3 | 71,5 | 1,3 | 236,2 |
| 21/04/2019 | 11:00 | 758,5 | 24,5 | 70,5 | 1,6 | 202,5 |
| 21/04/2019 | 12:00 | 758,2 | 25,1 | 68,0 | 2,2 | 202,5 |
| 21/04/2019 | 13:00 | 757,8 | 24,6 | 69,5 | 2,2 | 202,5 |
| 21/04/2019 | 14:00 | 757,4 | 24,1 | 70,0 | 2,0 | 202,5 |
| 21/04/2019 | 15:00 | 756,9 | 25,0 | 66,5 | 1,3 | 236,2 |
| 21/04/2019 | 16:00 | 756,8 | 24,1 | 69,5 | 1,3 | 236,2 |
| 21/04/2019 | 17:00 | 756,9 | 23,4 | 71,5 | 1,1 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 21/04/2019 | 18:00 | 757,0 | 21,7 | 76,5 | 0,9 | 270,0 |
| 21/04/2019 | 19:00 | 757,5 | 21,3 | 78,5 | 0,4 | 236,2 |
| 21/04/2019 | 20:00 | 758,0 | 21,2 | 80,0 | 0,6 | 238,4 |
| 21/04/2019 | 21:00 | 758,0 | 20,9 | 81,5 | 0,4 | 247,5 |
| 21/04/2019 | 22:00 | 758,0 | 20,8 | 83,5 | 0,4 | 236,2 |
| 21/04/2019 | 23:00 | 758,2 | 20,7 | 84,0 | 0,4 | 225,0 |
| 22/04/2019 | 00:00 | 758,0 | 20,7 | 83,5 | 0,4 | 247,5 |
| 22/04/2019 | 01:00 | 757,6 | 20,6 | 83,0 | 0,4 | 225,0 |
| 22/04/2019 | 02:00 | 757,2 | 20,5 | 83,0 | 0,4 | 247,5 |
| 22/04/2019 | 03:00 | 756,8 | 20,2 | 84,0 | 0,4 | 247,5 |
| 22/04/2019 | 04:00 | 756,8 | 20,2 | 84,0 | 0,2 | 202,5 |
| 22/04/2019 | 05:00 | 756,7 | 20,3 | 83,0 | 0,4 | 202,5 |
| 22/04/2019 | 06:00 | 757,0 | 20,2 | 84,0 | 0,2 | 202,5 |
| 22/04/2019 | 07:00 | 757,5 | 20,5 | 84,5 | 0,4 | 202,5 |
| 22/04/2019 | 08:00 | 758,0 | 21,1 | 81,5 | 0,4 | 270,0 |
| 22/04/2019 | 09:00 | 758,1 | 22,2 | 77,5 | 0,6 | 180,0 |
| 22/04/2019 | 10:00 | 758,0 | 23,9 | 72,5 | 1,3 | 202,5 |
| 22/04/2019 | 11:00 | 757,8 | 24,6 | 69,5 | 1,6 | 211,9 |
| 22/04/2019 | 12:00 | 757,3 | 24,7 | 68,5 | 1,8 | 191,2 |
| 22/04/2019 | 13:00 | 756,9 | 25,2 | 66,5 | 1,8 | 213,7 |
| 22/04/2019 | 14:00 | 756,4 | 25,5 | 63,0 | 1,8 | 236,2 |
| 22/04/2019 | 15:00 | 756,0 | 26,1 | 59,0 | 1,6 | 215,6 |
| 22/04/2019 | 16:00 | 756,0 | 25,8 | 61,0 | 1,3 | 202,5 |
| 22/04/2019 | 17:00 | 756,3 | 24,1 | 68,0 | 1,3 | 236,2 |
| 22/04/2019 | 18:00 | 757,0 | 22,6 | 73,5 | 0,9 | 270,0 |
| 22/04/2019 | 19:00 | 757,4 | 21,9 | 76,5 | 0,9 | 247,5 |
| 22/04/2019 | 20:00 | 757,7 | 21,6 | 78,5 | 0,6 | 209,4 |
| 22/04/2019 | 21:00 | 757,7 | 21,8 | 78,5 | 0,2 | 225,0 |
| 22/04/2019 | 22:00 | 757,8 | 21,2 | 82,0 | 0,4 | 225,0 |
| 22/04/2019 | 23:00 | 757,5 | 20,9 | 83,5 | 0,4 | 225,0 |
| 23/04/2019 | 00:00 | 757,5 | 20,8 | 84,5 | 0,4 | 225,0 |
| 23/04/2019 | 01:00 | 757,5 | 20,6 | 85,0 | 0,6 | 215,9 |
| 23/04/2019 | 02:00 | 757,3 | 20,6 | 85,0 | 0,4 | 225,0 |
| 23/04/2019 | 03:00 | 757,2 | 20,4 | 85,0 | 0,4 | 247,5 |
| 23/04/2019 | 04:00 | 757,1 | 20,4 | 85,5 | 0,4 | 247,5 |
| 23/04/2019 | 05:00 | 757,2 | 20,2 | 85,5 | 0,4 | 225,0 |
| 23/04/2019 | 06:00 | 757,5 | 20,1 | 87,0 | 0,4 | 270,0 |
| 23/04/2019 | 07:00 | 758,0 | 20,6 | 85,5 | 0,4 | 337,5 |
| 23/04/2019 | 08:00 | 758,4 | 21,2 | 83,0 | 0,9 | 202,5 |
| 23/04/2019 | 09:00 | 758,2 | 22,5 | 79,0 | 0,9 | 225,0 |
| 23/04/2019 | 10:00 | 758,0 | 23,9 | 73,5 | 1,3 | 270,0 |
| 23/04/2019 | 11:00 | 757,7 | 24,4 | 72,0 | 1,3 | 213,7 |
| 23/04/2019 | 12:00 | 757,3 | 24,5 | 71,0 | 1,8 | 236,2 |
| 23/04/2019 | 13:00 | 757,4 | 24,2 | 70,5 | 1,8 | 261,7 |
| 23/04/2019 | 14:00 | 756,8 | 25,4 | 65,5 | 1,6 | 202,5 |
| 23/04/2019 | 15:00 | 756,3 | 25,2 | 64,5 | 1,8 | 213,7 |
| 23/04/2019 | 16:00 | 756,6 | 24,5 | 68,0 | 1,6 | 202,5 |
| 23/04/2019 | 17:00 | 757,0 | 23,5 | 71,5 | 1,3 | 270,0 |
| 23/04/2019 | 18:00 | 757,2 | 22,2 | 76,5 | 1,1 | 270,0 |
| 23/04/2019 | 19:00 | 757,5 | 22,1 | 77,5 | 0,9 | 270,0 |
| 23/04/2019 | 20:00 | 757,8 | 22,1 | 77,0 | 0,9 | 292,5 |
| 23/04/2019 | 21:00 | 758,2 | 22,0 | 77,5 | 0,9 | 303,8 |
| 23/04/2019 | 22:00 | 758,2 | 22,0 | 78,5 | 0,4 | 270,0 |
| 23/04/2019 | 23:00 | 758,0 | 22,0 | 78,0 | 0,6 | 308,1 |
| 24/04/2019 | 00:00 | 757,8 | 22,0 | 78,5 | 0,4 | 292,5 |
| 24/04/2019 | 01:00 | 757,0 | 21,7 | 80,5 | 0,2 | 292,5 |
| 24/04/2019 | 02:00 | 756,7 | 21,6 | 81,5 | 0,4 | 281,2 |
| 24/04/2019 | 03:00 | 756,7 | 21,3 | 83,5 | 0,2 | 270,0 |
| 24/04/2019 | 04:00 | 756,7 | 21,2 | 83,5 | 0,4 | 225,0 |
| 24/04/2019 | 05:00 | 756,8 | 21,1 | 83,0 | 0,4 | 258,8 |
| 24/04/2019 | 06:00 | 757,0 | 21,1 | 83,0 | 0,4 | 225,0 |
| 24/04/2019 | 07:00 | 757,3 | 21,5 | 81,5 | 0,4 | 247,5 |
| 24/04/2019 | 08:00 | 757,4 | 22,9 | 78,0 | 0,4 | 247,5 |
| 24/04/2019 | 09:00 | 757,7 | 24,1 | 74,0 | 1,1 | 235,3 |
| 24/04/2019 | 10:00 | 757,5 | 25,9 | 66,0 | 1,6 | 270,0 |
| 24/04/2019 | 11:00 | 757,3 | 26,8 | 64,0 | 1,6 | 242,4 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 24/04/2019 | 12:00 | 757,0 | 26,6 | 63,0 | 1,8 | 236,2 |
| 24/04/2019 | 13:00 | 756,8 | 25,6 | 63,5 | 2,0 | 270,0 |
| 24/04/2019 | 14:00 | 756,1 | 25,6 | 65,5 | 1,3 | 202,5 |
| 24/04/2019 | 15:00 | 755,7 | 25,3 | 67,0 | 1,4 | 243,4 |
| 24/04/2019 | 16:00 | 755,3 | 24,2 | 70,5 | 1,6 | 270,0 |
| 24/04/2019 | 17:00 | 755,9 | 22,6 | 75,0 | 1,3 | 270,0 |
| 24/04/2019 | 18:00 | 756,1 | 22,4 | 76,5 | 1,1 | 271,2 |
| 24/04/2019 | 19:00 | 756,5 | 22,1 | 76,5 | 0,9 | 270,0 |
| 24/04/2019 | 20:00 | 757,0 | 21,8 | 78,5 | 0,9 | 270,0 |
| 24/04/2019 | 21:00 | 757,3 | 21,5 | 80,0 | 0,6 | 315,0 |
| 24/04/2019 | 22:00 | 757,5 | 21,5 | 80,5 | 0,4 | 281,2 |
| 24/04/2019 | 23:00 | 757,6 | 21,4 | 82,0 | 0,4 | 281,2 |
| 25/04/2019 | 00:00 | 757,1 | 21,4 | 81,0 | 0,4 | 292,5 |
| 25/04/2019 | 01:00 | 756,6 | 21,0 | 81,5 | 0,6 | 209,4 |
| 25/04/2019 | 02:00 | 756,0 | 20,8 | 82,0 | 0,6 | 228,8 |
| 25/04/2019 | 03:00 | 755,9 | 20,6 | 83,0 | 0,4 | 292,5 |
| 25/04/2019 | 04:00 | 755,9 | 20,6 | 83,5 | 0,4 | 225,0 |
| 25/04/2019 | 05:00 | 756,2 | 20,7 | 83,0 | 0,4 | 270,0 |
| 25/04/2019 | 06:00 | 756,9 | 20,8 | 82,5 | 0,4 | 270,0 |
| 25/04/2019 | 07:00 | 757,5 | 21,1 | 82,5 | 0,9 | 168,7 |
| 25/04/2019 | 08:00 | 758,0 | 21,5 | 81,5 | 1,1 | 153,2 |
| 25/04/2019 | 09:00 | 758,1 | 22,4 | 78,0 | 1,3 | 180,0 |
| 25/04/2019 | 10:00 | 758,0 | 24,0 | 72,5 | 1,3 | 236,2 |
| 25/04/2019 | 11:00 | 757,7 | 24,7 | 70,0 | 1,6 | 270,0 |
| 25/04/2019 | 12:00 | 757,4 | 24,1 | 71,5 | 1,6 | 270,0 |
| 25/04/2019 | 13:00 | 757,0 | 24,8 | 69,0 | 1,8 | 191,2 |
| 25/04/2019 | 14:00 | 756,4 | 25,5 | 66,5 | 1,8 | 258,8 |
| 25/04/2019 | 15:00 | 756,0 | 25,6 | 65,5 | 1,6 | 189,4 |
| 25/04/2019 | 16:00 | 755,9 | 25,4 | 66,0 | 1,6 | 234,2 |
| 25/04/2019 | 17:00 | 756,2 | 23,6 | 71,5 | 1,1 | 292,5 |
| 25/04/2019 | 18:00 | 756,6 | 22,3 | 76,0 | 0,9 | 281,2 |
| 25/04/2019 | 19:00 | 757,0 | 21,4 | 80,5 | 0,9 | 270,0 |
| 25/04/2019 | 20:00 | 757,4 | 21,3 | 81,0 | 0,6 | 240,6 |
| 25/04/2019 | 21:00 | 757,7 | 21,1 | 82,0 | 0,6 | 226,5 |
| 25/04/2019 | 22:00 | 757,6 | 20,9 | 82,5 | 0,6 | 256,6 |
| 25/04/2019 | 23:00 | 757,6 | 20,6 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 00:00 | 757,5 | 20,6 | 82,5 | 0,6 | 285,6 |
| 26/04/2019 | 01:00 | 757,0 | 20,6 | 81,5 | 0,6 | 292,5 |
| 26/04/2019 | 02:00 | 756,8 | 20,4 | 81,5 | 0,9 | 292,5 |
| 26/04/2019 | 03:00 | 756,8 | 20,2 | 82,5 | 0,9 | 281,2 |
| 26/04/2019 | 04:00 | 756,8 | 20,1 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 05:00 | 757,0 | 20,1 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 06:00 | 757,2 | 20,1 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 07:00 | 757,8 | 20,0 | 84,0 | 0,6 | 270,0 |
| 26/04/2019 | 08:00 | 758,0 | 20,6 | 82,5 | 0,6 | 221,8 |
| 26/04/2019 | 09:00 | 758,3 | 21,7 | 79,0 | 1,1 | 202,5 |
| 26/04/2019 | 10:00 | 758,2 | 22,8 | 75,0 | 1,3 | 236,2 |
| 26/04/2019 | 11:00 | 757,8 | 23,9 | 72,0 | 1,3 | 236,2 |
| 26/04/2019 | 12:00 | 756,9 | 24,1 | 70,5 | 1,6 | 238,3 |
| 26/04/2019 | 13:00 | 756,3 | 23,6 | 71,5 | 1,3 | 236,2 |
| 26/04/2019 | 14:00 | 756,0 | 23,5 | 71,0 | 1,6 | 242,4 |
| 26/04/2019 | 15:00 | 755,5 | 23,2 | 72,5 | 1,3 | 270,0 |
| 26/04/2019 | 16:00 | 755,3 | 23,8 | 71,0 | 1,6 | 242,4 |
| 26/04/2019 | 17:00 | 755,2 | 22,6 | 74,0 | 1,6 | 251,3 |
| 26/04/2019 | 18:00 | 755,5 | 22,0 | 76,5 | 1,3 | 180,0 |
| 26/04/2019 | 19:00 | 756,0 | 22,1 | 76,5 | 0,9 | 157,5 |
| 26/04/2019 | 20:00 | 756,4 | 22,0 | 75,5 | 0,9 | 247,5 |
| 26/04/2019 | 21:00 | 756,7 | 21,5 | 77,0 | 0,9 | 315,0 |
| 26/04/2019 | 22:00 | 756,7 | 21,2 | 77,0 | 0,6 | 292,5 |
| 26/04/2019 | 23:00 | 756,8 | 20,6 | 78,5 | 0,9 | 292,5 |
| 27/04/2019 | 00:00 | 756,5 | 20,4 | 79,5 | 0,4 | 270,0 |
| 27/04/2019 | 01:00 | 756,2 | 20,3 | 79,0 | 0,9 | 180,0 |
| 27/04/2019 | 02:00 | 755,8 | 20,3 | 79,5 | 0,4 | 225,0 |
| 27/04/2019 | 03:00 | 755,7 | 20,0 | 80,5 | 0,9 | 281,2 |
| 27/04/2019 | 04:00 | 755,8 | 19,5 | 82,0 | 0,6 | 270,0 |
| 27/04/2019 | 05:00 | 755,7 | 19,6 | 81,5 | 0,6 | 292,5 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-2

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|--------------|-------------|-------------|-------------|-----------|-----------|-----------|
| 27/04/2019 | 06:00 | 756,0 | 19,6 | 82,0 | 0,4 | 258,8 |
| 27/04/2019 | 07:00 | 756,4 | 19,6 | 82,5 | 0,6 | 247,5 |
| 27/04/2019 | 08:00 | 756,8 | 19,6 | 83,0 | 0,9 | 247,5 |
| 27/04/2019 | 09:00 | 757,2 | 20,1 | 82,0 | 0,9 | 247,5 |
| 27/04/2019 | 10:00 | 753,2 | 20,6 | 79,5 | 0,9 | 270,0 |
| 27/04/2019 | 11:00 | 753,0 | 21,5 | 76,5 | 1,3 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 08/04/2019 | 00:00 | | | | | |
| 08/04/2019 | 01:00 | | | | | |
| 08/04/2019 | 02:00 | | | | | |
| 08/04/2019 | 03:00 | | | | | |
| 08/04/2019 | 04:00 | | | | | |
| 08/04/2019 | 05:00 | | | | | |
| 08/04/2019 | 06:00 | | | | | |
| 08/04/2019 | 07:00 | | | | | |
| 08/04/2019 | 08:00 | | | | | |
| 08/04/2019 | 09:00 | | | | | |
| 08/04/2019 | 10:00 | | | | | |
| 08/04/2019 | 11:00 | | | | | |
| 08/04/2019 | 12:00 | | | | | |
| 08/04/2019 | 13:00 | 756,5 | 27,7 | 66,5 | 2,2 | 138,6 |
| 08/04/2019 | 14:00 | 756,1 | 28,1 | 63,5 | 1,8 | 213,7 |
| 08/04/2019 | 15:00 | 755,9 | 27,2 | 65,5 | 1,8 | 270,0 |
| 08/04/2019 | 16:00 | 756,1 | 26,1 | 68,5 | 1,6 | 242,4 |
| 08/04/2019 | 17:00 | 756,2 | 24,9 | 71,0 | 1,3 | 270,0 |
| 08/04/2019 | 18:00 | 756,8 | 23,9 | 73,0 | 1,3 | 270,0 |
| 08/04/2019 | 19:00 | 757,4 | 23,0 | 75,0 | 1,1 | 279,2 |
| 08/04/2019 | 20:00 | 757,7 | 23,0 | 75,0 | 0,6 | 240,6 |
| 08/04/2019 | 21:00 | 757,9 | 22,8 | 76,0 | 0,9 | 292,5 |
| 08/04/2019 | 22:00 | 757,8 | 22,5 | 76,5 | 0,9 | 292,5 |
| 08/04/2019 | 23:00 | 757,7 | 22,3 | 77,5 | 0,4 | 270,0 |
| 09/04/2019 | 00:00 | 757,5 | 21,9 | 79,0 | 0,6 | 244,3 |
| 09/04/2019 | 01:00 | 757,0 | 21,6 | 80,0 | 0,4 | 225,0 |
| 09/04/2019 | 02:00 | 756,6 | 21,1 | 80,5 | 0,4 | 225,0 |
| 09/04/2019 | 03:00 | 756,5 | 20,8 | 82,0 | 0,4 | 225,0 |
| 09/04/2019 | 04:00 | 756,8 | 20,8 | 81,0 | 0,4 | 270,0 |
| 09/04/2019 | 05:00 | 757,0 | 20,3 | 82,5 | 0,4 | 270,0 |
| 09/04/2019 | 06:00 | 757,4 | 20,1 | 84,0 | 0,2 | 225,0 |
| 09/04/2019 | 07:00 | 757,8 | 20,8 | 82,5 | 0,6 | 273,2 |
| 09/04/2019 | 08:00 | 758,2 | 22,4 | 77,5 | 0,4 | 281,2 |
| 09/04/2019 | 09:00 | 758,3 | 23,9 | 73,0 | 1,1 | 270,0 |
| 09/04/2019 | 10:00 | 758,3 | 24,6 | 70,5 | 1,6 | 242,4 |
| 09/04/2019 | 11:00 | 758,0 | 25,5 | 66,5 | 1,6 | 256,9 |
| 09/04/2019 | 12:00 | 757,4 | 26,6 | 63,0 | 1,6 | 189,4 |
| 09/04/2019 | 13:00 | 756,9 | 26,8 | 61,0 | 2,2 | 202,5 |
| 09/04/2019 | 14:00 | 756,1 | 26,9 | 60,5 | 2,5 | 180,0 |
| 09/04/2019 | 15:00 | 755,9 | 26,3 | 61,5 | 2,5 | 190,1 |
| 09/04/2019 | 16:00 | 756,0 | 26,0 | 61,0 | 2,2 | 180,0 |
| 09/04/2019 | 17:00 | 756,2 | 25,1 | 63,0 | 2,2 | 135,0 |
| 09/04/2019 | 18:00 | 756,7 | 23,7 | 68,0 | 1,8 | 180,0 |
| 09/04/2019 | 19:00 | 757,2 | 23,0 | 70,5 | 1,3 | 157,5 |
| 09/04/2019 | 20:00 | 757,5 | 22,9 | 70,5 | 1,3 | 123,8 |
| 09/04/2019 | 21:00 | 757,7 | 22,7 | 72,0 | 1,3 | 135,0 |
| 09/04/2019 | 22:00 | 757,8 | 22,2 | 73,5 | 0,9 | 180,0 |
| 09/04/2019 | 23:00 | 757,5 | 21,6 | 74,5 | 0,6 | 268,5 |
| 10/04/2019 | 00:00 | 757,4 | 21,2 | 75,5 | 0,4 | 292,5 |
| 10/04/2019 | 01:00 | 757,2 | 21,2 | 74,0 | 0,4 | 168,7 |
| 10/04/2019 | 02:00 | 757,0 | 20,7 | 75,5 | 0,6 | 263,1 |
| 10/04/2019 | 03:00 | 757,0 | 20,0 | 78,0 | 0,4 | 270,0 |
| 10/04/2019 | 04:00 | 757,2 | 19,7 | 79,5 | 0,2 | 270,0 |
| 10/04/2019 | 05:00 | 757,2 | 19,8 | 80,5 | 0,0 | 0,0 |
| 10/04/2019 | 06:00 | 757,7 | 19,9 | 79,5 | 0,4 | 270,0 |
| 10/04/2019 | 07:00 | 758,0 | 20,5 | 78,5 | 0,2 | 247,5 |
| 10/04/2019 | 08:00 | 758,3 | 21,7 | 75,0 | 0,6 | 247,5 |
| 10/04/2019 | 09:00 | 758,5 | 22,7 | 71,5 | 1,3 | 225,0 |
| 10/04/2019 | 10:00 | 758,5 | 23,6 | 69,5 | 1,3 | 213,7 |
| 10/04/2019 | 11:00 | 758,3 | 23,9 | 69,5 | 1,8 | 202,5 |
| 10/04/2019 | 12:00 | 757,8 | 24,4 | 68,0 | 1,8 | 202,5 |
| 10/04/2019 | 13:00 | 757,2 | 24,8 | 67,0 | 1,8 | 202,5 |
| 10/04/2019 | 14:00 | 756,6 | 24,4 | 68,0 | 1,8 | 225,0 |
| 10/04/2019 | 15:00 | 756,3 | 24,2 | 67,5 | 1,8 | 202,5 |
| 10/04/2019 | 16:00 | 756,2 | 23,9 | 68,5 | 1,8 | 247,5 |
| 10/04/2019 | 17:00 | 756,6 | 23,4 | 69,5 | 1,6 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 10/04/2019 | 18:00 | 757,0 | 22,4 | 73,5 | 0,9 | 213,7 |
| 10/04/2019 | 19:00 | 757,3 | 21,6 | 76,5 | 0,8 | 259,9 |
| 10/04/2019 | 20:00 | 757,5 | 21,6 | 75,5 | 0,6 | 268,5 |
| 10/04/2019 | 21:00 | 757,7 | 21,6 | 75,5 | 0,6 | 276,4 |
| 10/04/2019 | 22:00 | 757,3 | 21,1 | 77,0 | 0,6 | 292,5 |
| 10/04/2019 | 23:00 | 757,3 | 20,9 | 77,0 | 0,9 | 303,8 |
| 11/04/2019 | 00:00 | 757,1 | 20,8 | 77,0 | 0,6 | 301,6 |
| 11/04/2019 | 01:00 | 756,7 | 20,3 | 78,5 | 0,6 | 270,0 |
| 11/04/2019 | 02:00 | 756,3 | 20,0 | 80,5 | 0,4 | 315,0 |
| 11/04/2019 | 03:00 | 756,3 | 19,7 | 81,5 | 0,2 | 225,0 |
| 11/04/2019 | 04:00 | 756,2 | 19,5 | 81,0 | 0,4 | 225,0 |
| 11/04/2019 | 05:00 | 756,3 | 19,5 | 81,0 | 0,2 | 270,0 |
| 11/04/2019 | 06:00 | 756,8 | 19,6 | 81,0 | 0,0 | 0,0 |
| 11/04/2019 | 07:00 | 757,2 | 20,2 | 79,5 | 0,2 | 225,0 |
| 11/04/2019 | 08:00 | 757,5 | 21,6 | 75,5 | 0,6 | 250,7 |
| 11/04/2019 | 09:00 | 757,5 | 23,2 | 71,5 | 0,9 | 202,5 |
| 11/04/2019 | 10:00 | 757,6 | 24,5 | 68,0 | 1,3 | 236,2 |
| 11/04/2019 | 11:00 | 757,1 | 25,1 | 66,0 | 1,6 | 242,4 |
| 11/04/2019 | 12:00 | 756,8 | 24,9 | 67,0 | 2,0 | 222,6 |
| 11/04/2019 | 13:00 | 756,5 | 25,1 | 64,5 | 1,8 | 270,0 |
| 11/04/2019 | 14:00 | 755,5 | 26,2 | 61,5 | 1,8 | 270,0 |
| 11/04/2019 | 15:00 | 755,2 | 27,0 | 55,0 | 1,8 | 246,0 |
| 11/04/2019 | 16:00 | 755,3 | 26,6 | 57,0 | 1,6 | 189,4 |
| 11/04/2019 | 17:00 | 755,6 | 25,6 | 61,5 | 1,3 | 180,0 |
| 11/04/2019 | 18:00 | 755,7 | 23,2 | 69,0 | 1,3 | 292,5 |
| 11/04/2019 | 19:00 | 755,8 | 22,6 | 70,5 | 1,1 | 292,5 |
| 11/04/2019 | 20:00 | 756,0 | 22,2 | 72,5 | 0,9 | 303,8 |
| 11/04/2019 | 21:00 | 756,2 | 21,9 | 73,5 | 0,6 | 276,9 |
| 11/04/2019 | 22:00 | 756,2 | 21,4 | 75,0 | 0,4 | 247,5 |
| 11/04/2019 | 23:00 | 756,2 | 21,1 | 76,5 | 0,4 | 258,8 |
| 12/04/2019 | 00:00 | 755,8 | 20,8 | 78,0 | 0,4 | 281,2 |
| 12/04/2019 | 01:00 | 755,7 | 20,4 | 79,0 | 0,4 | 270,0 |
| 12/04/2019 | 02:00 | 755,7 | 20,1 | 80,0 | 0,2 | 202,5 |
| 12/04/2019 | 03:00 | 755,8 | 19,8 | 81,0 | 0,4 | 213,7 |
| 12/04/2019 | 04:00 | 756,0 | 19,6 | 81,5 | 0,2 | 225,0 |
| 12/04/2019 | 05:00 | 756,0 | 19,6 | 82,0 | 0,2 | 225,0 |
| 12/04/2019 | 06:00 | 756,5 | 19,7 | 81,5 | 0,0 | 0,0 |
| 12/04/2019 | 07:00 | 757,0 | 20,1 | 81,0 | 0,4 | 247,5 |
| 12/04/2019 | 08:00 | 757,6 | 21,5 | 77,0 | 0,6 | 263,1 |
| 12/04/2019 | 09:00 | 757,6 | 22,9 | 72,0 | 1,1 | 229,3 |
| 12/04/2019 | 10:00 | 757,4 | 24,6 | 65,5 | 1,3 | 270,0 |
| 12/04/2019 | 11:00 | 756,7 | 25,8 | 61,5 | 1,8 | 270,0 |
| 12/04/2019 | 12:00 | 756,2 | 26,2 | 60,5 | 2,0 | 240,1 |
| 12/04/2019 | 13:00 | 755,8 | 26,6 | 58,0 | 2,2 | 270,0 |
| 12/04/2019 | 14:00 | 755,3 | 26,3 | 57,0 | 2,0 | 259,9 |
| 12/04/2019 | 15:00 | 754,9 | 26,8 | 54,5 | 2,0 | 230,7 |
| 12/04/2019 | 16:00 | 755,0 | 25,6 | 61,0 | 1,8 | 157,5 |
| 12/04/2019 | 17:00 | 755,0 | 25,2 | 60,0 | 1,4 | 202,5 |
| 12/04/2019 | 18:00 | 755,2 | 24,2 | 62,0 | 1,1 | 214,7 |
| 12/04/2019 | 19:00 | 755,5 | 24,1 | 63,0 | 0,9 | 168,7 |
| 12/04/2019 | 20:00 | 756,0 | 22,9 | 67,5 | 1,1 | 270,0 |
| 12/04/2019 | 21:00 | 756,0 | 22,0 | 69,5 | 0,6 | 256,6 |
| 12/04/2019 | 22:00 | 756,2 | 21,7 | 71,5 | 0,6 | 215,9 |
| 12/04/2019 | 23:00 | 756,3 | 21,2 | 73,5 | 0,6 | 279,1 |
| 13/04/2019 | 00:00 | 756,2 | 20,7 | 75,5 | 0,4 | 180,0 |
| 13/04/2019 | 01:00 | 756,2 | 20,2 | 77,5 | 0,4 | 180,0 |
| 13/04/2019 | 02:00 | 756,0 | 19,9 | 78,5 | 0,4 | 225,0 |
| 13/04/2019 | 03:00 | 756,2 | 19,7 | 80,5 | 0,4 | 225,0 |
| 13/04/2019 | 04:00 | 756,2 | 19,6 | 79,5 | 0,4 | 247,5 |
| 13/04/2019 | 05:00 | 756,3 | 19,6 | 81,0 | 0,0 | 0,0 |
| 13/04/2019 | 06:00 | 756,8 | 19,7 | 81,0 | 0,4 | 247,5 |
| 13/04/2019 | 07:00 | 757,4 | 20,2 | 80,0 | 0,4 | 225,0 |
| 13/04/2019 | 08:00 | 757,8 | 21,4 | 76,0 | 0,6 | 209,4 |
| 13/04/2019 | 09:00 | 757,7 | 23,1 | 70,0 | 1,1 | 270,0 |
| 13/04/2019 | 10:00 | 757,8 | 24,4 | 65,5 | 1,3 | 191,2 |
| 13/04/2019 | 11:00 | 757,1 | 25,4 | 61,5 | 1,6 | 202,5 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 13/04/2019 | 12:00 | 756,7 | 25,4 | 60,0 | 1,8 | 225,0 |
| 13/04/2019 | 13:00 | 756,0 | 25,9 | 57,5 | 2,0 | 270,0 |
| 13/04/2019 | 14:00 | 755,4 | 26,2 | 57,0 | 1,8 | 225,0 |
| 13/04/2019 | 15:00 | 755,1 | 26,1 | 58,5 | 1,8 | 191,2 |
| 13/04/2019 | 16:00 | 755,2 | 24,4 | 63,5 | 2,0 | 180,0 |
| 13/04/2019 | 17:00 | 755,3 | 24,4 | 64,5 | 1,3 | 180,0 |
| 13/04/2019 | 18:00 | 755,5 | 22,6 | 69,0 | 1,1 | 270,0 |
| 13/04/2019 | 19:00 | 755,9 | 22,0 | 71,5 | 1,3 | 292,5 |
| 13/04/2019 | 20:00 | 756,2 | 21,6 | 73,0 | 1,3 | 303,8 |
| 13/04/2019 | 21:00 | 756,5 | 21,3 | 74,0 | 1,1 | 292,5 |
| 13/04/2019 | 22:00 | 756,5 | 21,2 | 74,5 | 0,6 | 285,6 |
| 13/04/2019 | 23:00 | 756,5 | 20,8 | 75,5 | 0,6 | 225,0 |
| 14/04/2019 | 00:00 | 756,5 | 20,5 | 76,5 | 0,4 | 281,2 |
| 14/04/2019 | 01:00 | 756,2 | 19,8 | 80,0 | 0,4 | 236,2 |
| 14/04/2019 | 02:00 | 756,1 | 19,4 | 81,5 | 0,4 | 247,5 |
| 14/04/2019 | 03:00 | 755,7 | 19,2 | 83,5 | 0,4 | 247,5 |
| 14/04/2019 | 04:00 | 755,5 | 19,2 | 84,0 | 0,4 | 247,5 |
| 14/04/2019 | 05:00 | 755,8 | 19,1 | 84,0 | 0,4 | 247,5 |
| 14/04/2019 | 06:00 | 756,3 | 18,9 | 85,0 | 0,4 | 247,5 |
| 14/04/2019 | 07:00 | 756,9 | 19,4 | 84,5 | 0,4 | 247,5 |
| 14/04/2019 | 08:00 | 757,3 | 20,9 | 79,5 | 0,4 | 258,8 |
| 14/04/2019 | 09:00 | 757,5 | 22,9 | 72,0 | 1,1 | 256,7 |
| 14/04/2019 | 10:00 | 757,7 | 23,9 | 70,0 | 1,3 | 202,5 |
| 14/04/2019 | 11:00 | 757,7 | 24,3 | 67,0 | 1,6 | 230,1 |
| 14/04/2019 | 12:00 | 757,0 | 25,1 | 64,5 | 1,6 | 221,2 |
| 14/04/2019 | 13:00 | 756,7 | 25,1 | 65,5 | 1,8 | 270,0 |
| 14/04/2019 | 14:00 | 756,0 | 25,1 | 64,5 | 1,6 | 228,8 |
| 14/04/2019 | 15:00 | 755,5 | 25,4 | 60,5 | 1,6 | 242,4 |
| 14/04/2019 | 16:00 | 755,5 | 24,8 | 63,0 | 1,3 | 191,2 |
| 14/04/2019 | 17:00 | 755,7 | 23,9 | 68,0 | 1,6 | 270,0 |
| 14/04/2019 | 18:00 | 756,0 | 22,2 | 73,0 | 1,6 | 279,4 |
| 14/04/2019 | 19:00 | 756,3 | 21,6 | 75,0 | 1,1 | 305,8 |
| 14/04/2019 | 20:00 | 756,7 | 21,6 | 75,0 | 0,6 | 292,5 |
| 14/04/2019 | 21:00 | 756,8 | 21,6 | 74,0 | 0,4 | 270,0 |
| 14/04/2019 | 22:00 | 756,8 | 21,2 | 75,5 | 0,9 | 281,2 |
| 14/04/2019 | 23:00 | 756,8 | 20,9 | 76,5 | 0,9 | 303,8 |
| 15/04/2019 | 00:00 | 756,6 | 20,6 | 78,0 | 0,4 | 281,2 |
| 15/04/2019 | 01:00 | 756,2 | 20,3 | 79,0 | 0,4 | 258,8 |
| 15/04/2019 | 02:00 | 756,0 | 19,9 | 80,5 | 0,4 | 270,0 |
| 15/04/2019 | 03:00 | 755,9 | 19,4 | 83,5 | 0,6 | 202,5 |
| 15/04/2019 | 04:00 | 755,8 | 19,2 | 84,0 | 0,4 | 225,0 |
| 15/04/2019 | 05:00 | 756,1 | 19,2 | 85,0 | 0,2 | 225,0 |
| 15/04/2019 | 06:00 | 756,6 | 19,1 | 86,0 | 0,4 | 225,0 |
| 15/04/2019 | 07:00 | 757,4 | 19,6 | 85,0 | 0,2 | 225,0 |
| 15/04/2019 | 08:00 | 757,8 | 20,9 | 80,5 | 0,4 | 258,8 |
| 15/04/2019 | 09:00 | 758,0 | 23,0 | 73,5 | 1,1 | 247,5 |
| 15/04/2019 | 10:00 | 757,8 | 24,2 | 69,5 | 1,3 | 225,0 |
| 15/04/2019 | 11:00 | 757,6 | 25,0 | 66,5 | 1,6 | 242,4 |
| 15/04/2019 | 12:00 | 757,2 | 25,3 | 65,0 | 1,6 | 219,9 |
| 15/04/2019 | 13:00 | 757,0 | 25,6 | 63,5 | 1,8 | 247,5 |
| 15/04/2019 | 14:00 | 756,3 | 25,8 | 61,5 | 1,6 | 270,0 |
| 15/04/2019 | 15:00 | 755,8 | 25,6 | 63,0 | 1,6 | 242,4 |
| 15/04/2019 | 16:00 | 755,8 | 25,0 | 64,5 | 1,8 | 270,0 |
| 15/04/2019 | 17:00 | 755,8 | 24,1 | 67,0 | 1,8 | 281,2 |
| 15/04/2019 | 18:00 | 756,0 | 23,1 | 70,0 | 1,4 | 285,0 |
| 15/04/2019 | 19:00 | 756,5 | 22,8 | 70,0 | 0,4 | 281,2 |
| 15/04/2019 | 20:00 | 757,1 | 22,5 | 71,5 | 0,6 | 285,6 |
| 15/04/2019 | 21:00 | 757,5 | 22,0 | 74,5 | 0,9 | 315,0 |
| 15/04/2019 | 22:00 | 757,7 | 21,5 | 76,5 | 0,4 | 258,8 |
| 15/04/2019 | 23:00 | 757,8 | 21,0 | 77,5 | 0,4 | 213,7 |
| 16/04/2019 | 00:00 | 757,7 | 20,8 | 78,5 | 0,4 | 281,2 |
| 16/04/2019 | 01:00 | 757,2 | 20,4 | 79,5 | 0,4 | 247,5 |
| 16/04/2019 | 02:00 | 756,6 | 20,3 | 80,0 | 0,2 | 225,0 |
| 16/04/2019 | 03:00 | 756,5 | 20,4 | 80,0 | 0,4 | 225,0 |
| 16/04/2019 | 04:00 | 756,4 | 20,0 | 82,0 | 0,4 | 258,8 |
| 16/04/2019 | 05:00 | 756,3 | 19,3 | 84,5 | 0,4 | 247,5 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 16/04/2019 | 06:00 | 756,6 | 19,2 | 85,0 | 0,0 | 0,0 |
| 16/04/2019 | 07:00 | 757,1 | 19,5 | 85,5 | 0,4 | 225,0 |
| 16/04/2019 | 08:00 | 757,7 | 20,9 | 81,0 | 0,9 | 270,0 |
| 16/04/2019 | 09:00 | 757,8 | 23,0 | 74,0 | 0,9 | 258,8 |
| 16/04/2019 | 10:00 | 757,9 | 24,6 | 69,0 | 1,3 | 270,0 |
| 16/04/2019 | 11:00 | 757,8 | 24,2 | 69,5 | 1,3 | 236,2 |
| 16/04/2019 | 12:00 | 757,1 | 24,9 | 67,5 | 1,1 | 229,3 |
| 16/04/2019 | 13:00 | 756,5 | 25,5 | 65,0 | 1,3 | 202,5 |
| 16/04/2019 | 14:00 | 755,9 | 25,2 | 66,0 | 1,3 | 236,2 |
| 16/04/2019 | 15:00 | 755,4 | 24,9 | 66,5 | 1,3 | 236,2 |
| 16/04/2019 | 16:00 | 755,2 | 24,9 | 66,5 | 1,3 | 236,2 |
| 16/04/2019 | 17:00 | 755,6 | 23,8 | 68,0 | 1,3 | 270,0 |
| 16/04/2019 | 18:00 | 756,0 | 22,1 | 74,0 | 1,6 | 270,0 |
| 16/04/2019 | 19:00 | 756,2 | 21,9 | 76,0 | 0,9 | 281,2 |
| 16/04/2019 | 20:00 | 756,9 | 21,6 | 77,5 | 0,9 | 303,8 |
| 16/04/2019 | 21:00 | 757,2 | 21,6 | 77,0 | 0,9 | 292,5 |
| 16/04/2019 | 22:00 | 757,0 | 21,5 | 77,0 | 0,6 | 285,6 |
| 16/04/2019 | 23:00 | 756,9 | 21,3 | 77,0 | 0,6 | 256,6 |
| 17/04/2019 | 00:00 | 756,8 | 20,9 | 78,5 | 0,6 | 266,8 |
| 17/04/2019 | 01:00 | 756,5 | 20,5 | 80,0 | 0,4 | 247,5 |
| 17/04/2019 | 02:00 | 756,2 | 20,2 | 81,5 | 0,6 | 240,6 |
| 17/04/2019 | 03:00 | 756,0 | 19,9 | 82,5 | 0,4 | 258,8 |
| 17/04/2019 | 04:00 | 756,0 | 19,6 | 84,0 | 0,4 | 247,5 |
| 17/04/2019 | 05:00 | 756,1 | 19,5 | 84,0 | 0,4 | 258,8 |
| 17/04/2019 | 06:00 | 756,6 | 19,6 | 84,5 | 0,4 | 270,0 |
| 17/04/2019 | 07:00 | 757,1 | 19,9 | 83,5 | 0,4 | 247,5 |
| 17/04/2019 | 08:00 | 757,4 | 21,5 | 79,0 | 0,4 | 225,0 |
| 17/04/2019 | 09:00 | 757,6 | 23,4 | 73,0 | 1,1 | 256,7 |
| 17/04/2019 | 10:00 | 757,6 | 24,3 | 69,0 | 1,6 | 270,0 |
| 17/04/2019 | 11:00 | 757,3 | 24,9 | 65,5 | 1,8 | 236,2 |
| 17/04/2019 | 12:00 | 756,8 | 26,0 | 63,0 | 1,6 | 270,0 |
| 17/04/2019 | 13:00 | 756,5 | 25,2 | 64,0 | 1,8 | 270,0 |
| 17/04/2019 | 14:00 | 755,6 | 24,7 | 65,5 | 1,3 | 270,0 |
| 17/04/2019 | 15:00 | 755,3 | 24,2 | 67,0 | 1,3 | 258,8 |
| 17/04/2019 | 16:00 | 755,5 | 23,2 | 70,0 | 1,6 | 243,7 |
| 17/04/2019 | 17:00 | 755,6 | 23,2 | 70,0 | 1,3 | 270,0 |
| 17/04/2019 | 18:00 | 755,8 | 22,0 | 74,5 | 0,9 | 258,8 |
| 17/04/2019 | 19:00 | 756,2 | 21,3 | 76,5 | 0,9 | 270,0 |
| 17/04/2019 | 20:00 | 756,6 | 21,3 | 77,0 | 0,9 | 281,2 |
| 17/04/2019 | 21:00 | 756,8 | 21,1 | 78,0 | 0,9 | 281,2 |
| 17/04/2019 | 22:00 | 756,8 | 20,9 | 79,0 | 0,4 | 270,0 |
| 17/04/2019 | 23:00 | 756,7 | 20,6 | 80,5 | 0,4 | 236,2 |
| 18/04/2019 | 00:00 | 756,6 | 20,4 | 81,5 | 0,4 | 247,5 |
| 18/04/2019 | 01:00 | 756,2 | 20,0 | 83,5 | 0,4 | 236,2 |
| 18/04/2019 | 02:00 | 756,0 | 19,6 | 84,5 | 0,4 | 213,7 |
| 18/04/2019 | 03:00 | 755,8 | 19,5 | 85,0 | 0,4 | 225,0 |
| 18/04/2019 | 04:00 | 755,7 | 19,4 | 85,0 | 0,4 | 247,5 |
| 18/04/2019 | 05:00 | 755,6 | 19,5 | 84,0 | 0,2 | 225,0 |
| 18/04/2019 | 06:00 | 756,0 | 19,4 | 83,5 | 0,4 | 247,5 |
| 18/04/2019 | 07:00 | 756,6 | 19,8 | 83,5 | 0,4 | 225,0 |
| 18/04/2019 | 08:00 | 757,0 | 20,6 | 81,0 | 0,4 | 236,2 |
| 18/04/2019 | 09:00 | 757,4 | 22,6 | 75,5 | 0,6 | 202,5 |
| 18/04/2019 | 10:00 | 757,6 | 23,0 | 73,5 | 1,6 | 193,1 |
| 18/04/2019 | 11:00 | 757,2 | 24,1 | 68,5 | 1,3 | 225,0 |
| 18/04/2019 | 12:00 | 756,8 | 24,1 | 68,0 | 1,8 | 247,5 |
| 18/04/2019 | 13:00 | 756,1 | 24,1 | 68,0 | 1,6 | 228,8 |
| 18/04/2019 | 14:00 | 755,8 | 23,6 | 68,0 | 1,8 | 225,0 |
| 18/04/2019 | 15:00 | 755,3 | 23,9 | 68,5 | 1,3 | 236,2 |
| 18/04/2019 | 16:00 | 755,2 | 24,3 | 66,0 | 1,1 | 256,7 |
| 18/04/2019 | 17:00 | 755,5 | 22,8 | 71,0 | 0,9 | 270,0 |
| 18/04/2019 | 18:00 | 755,7 | 21,6 | 75,0 | 0,9 | 258,8 |
| 18/04/2019 | 19:00 | 756,0 | 21,0 | 79,0 | 0,6 | 270,0 |
| 18/04/2019 | 20:00 | 756,6 | 20,6 | 81,5 | 0,4 | 225,0 |
| 18/04/2019 | 21:00 | 756,8 | 20,3 | 82,0 | 0,9 | 236,2 |
| 18/04/2019 | 22:00 | 757,0 | 20,2 | 82,5 | 0,4 | 247,5 |
| 18/04/2019 | 23:00 | 757,0 | 20,3 | 83,0 | 0,6 | 299,4 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 19/04/2019 | 00:00 | 756,8 | 20,6 | 81,5 | 0,2 | 247,5 |
| 19/04/2019 | 01:00 | 756,4 | 20,2 | 83,5 | 0,4 | 270,0 |
| 19/04/2019 | 02:00 | 756,3 | 20,2 | 84,0 | 0,6 | 256,6 |
| 19/04/2019 | 03:00 | 756,2 | 20,2 | 83,5 | 0,4 | 213,7 |
| 19/04/2019 | 04:00 | 756,2 | 20,2 | 83,0 | 0,4 | 281,2 |
| 19/04/2019 | 05:00 | 756,2 | 19,9 | 83,0 | 0,2 | 225,0 |
| 19/04/2019 | 06:00 | 756,6 | 19,6 | 83,5 | 0,6 | 256,6 |
| 19/04/2019 | 07:00 | 757,2 | 20,0 | 83,5 | 0,2 | 247,5 |
| 19/04/2019 | 08:00 | 757,9 | 21,1 | 81,0 | 0,6 | 209,4 |
| 19/04/2019 | 09:00 | 758,5 | 22,4 | 76,5 | 1,6 | 202,5 |
| 19/04/2019 | 10:00 | 758,5 | 22,9 | 74,0 | 1,6 | 193,1 |
| 19/04/2019 | 11:00 | 758,4 | 23,6 | 71,5 | 1,8 | 213,7 |
| 19/04/2019 | 12:00 | 757,9 | 24,6 | 68,0 | 1,8 | 236,2 |
| 19/04/2019 | 13:00 | 757,3 | 24,8 | 66,5 | 2,0 | 214,9 |
| 19/04/2019 | 14:00 | 757,0 | 24,2 | 68,0 | 1,8 | 180,0 |
| 19/04/2019 | 15:00 | 756,7 | 24,3 | 67,5 | 1,3 | 202,5 |
| 19/04/2019 | 16:00 | 756,6 | 23,9 | 69,0 | 1,3 | 247,5 |
| 19/04/2019 | 17:00 | 756,7 | 23,2 | 71,5 | 0,9 | 258,8 |
| 19/04/2019 | 18:00 | 756,9 | 21,5 | 77,0 | 0,9 | 213,7 |
| 19/04/2019 | 19:00 | 757,4 | 20,9 | 79,0 | 0,9 | 258,8 |
| 19/04/2019 | 20:00 | 757,8 | 20,9 | 79,0 | 0,4 | 247,5 |
| 19/04/2019 | 21:00 | 757,8 | 21,2 | 78,0 | 0,2 | 225,0 |
| 19/04/2019 | 22:00 | 757,5 | 20,9 | 79,5 | 0,4 | 258,8 |
| 19/04/2019 | 23:00 | 757,7 | 20,8 | 81,0 | 0,6 | 270,0 |
| 20/04/2019 | 00:00 | 757,7 | 20,7 | 81,5 | 0,4 | 270,0 |
| 20/04/2019 | 01:00 | 757,5 | 20,4 | 82,5 | 0,4 | 270,0 |
| 20/04/2019 | 02:00 | 757,2 | 20,4 | 82,0 | 0,4 | 270,0 |
| 20/04/2019 | 03:00 | 756,9 | 20,2 | 82,5 | 0,0 | 0,0 |
| 20/04/2019 | 04:00 | 756,7 | 20,1 | 82,5 | 0,2 | 270,0 |
| 20/04/2019 | 05:00 | 756,8 | 19,9 | 86,5 | 0,4 | 225,0 |
| 20/04/2019 | 06:00 | 757,1 | 20,1 | 87,0 | 0,2 | 225,0 |
| 20/04/2019 | 07:00 | 757,7 | 20,5 | 84,5 | 0,4 | 225,0 |
| 20/04/2019 | 08:00 | 758,3 | 21,1 | 82,0 | 0,6 | 270,0 |
| 20/04/2019 | 09:00 | 758,6 | 22,7 | 77,0 | 0,9 | 202,5 |
| 20/04/2019 | 10:00 | 758,7 | 24,3 | 72,5 | 1,3 | 258,8 |
| 20/04/2019 | 11:00 | 758,4 | 24,9 | 68,5 | 1,3 | 225,0 |
| 20/04/2019 | 12:00 | 757,9 | 25,4 | 66,5 | 1,6 | 211,9 |
| 20/04/2019 | 13:00 | 757,8 | 25,2 | 67,0 | 1,8 | 225,0 |
| 20/04/2019 | 14:00 | 757,3 | 25,8 | 62,5 | 1,6 | 234,2 |
| 20/04/2019 | 15:00 | 757,0 | 25,4 | 65,0 | 1,8 | 191,2 |
| 20/04/2019 | 16:00 | 756,6 | 25,0 | 67,0 | 1,3 | 247,5 |
| 20/04/2019 | 17:00 | 756,8 | 23,6 | 71,0 | 1,1 | 220,7 |
| 20/04/2019 | 18:00 | 757,0 | 22,5 | 74,5 | 0,9 | 225,0 |
| 20/04/2019 | 19:00 | 757,5 | 21,8 | 77,5 | 0,6 | 260,9 |
| 20/04/2019 | 20:00 | 757,9 | 21,6 | 78,0 | 0,4 | 247,5 |
| 20/04/2019 | 21:00 | 758,2 | 21,4 | 80,5 | 0,4 | 258,8 |
| 20/04/2019 | 22:00 | 758,2 | 21,4 | 81,0 | 0,6 | 285,6 |
| 20/04/2019 | 23:00 | 758,2 | 21,6 | 79,5 | 0,2 | 270,0 |
| 21/04/2019 | 00:00 | 757,8 | 21,3 | 82,5 | 0,6 | 268,5 |
| 21/04/2019 | 01:00 | 757,4 | 20,9 | 83,5 | 0,6 | 270,0 |
| 21/04/2019 | 02:00 | 757,2 | 20,9 | 83,5 | 0,4 | 191,2 |
| 21/04/2019 | 03:00 | 757,0 | 20,9 | 83,0 | 0,4 | 236,2 |
| 21/04/2019 | 04:00 | 757,0 | 20,7 | 83,0 | 0,4 | 270,0 |
| 21/04/2019 | 05:00 | 757,0 | 20,2 | 83,5 | 0,4 | 258,8 |
| 21/04/2019 | 06:00 | 757,5 | 20,1 | 85,0 | 0,4 | 213,7 |
| 21/04/2019 | 07:00 | 757,8 | 20,5 | 84,0 | 0,2 | 247,5 |
| 21/04/2019 | 08:00 | 758,5 | 21,2 | 81,5 | 0,9 | 202,5 |
| 21/04/2019 | 09:00 | 758,5 | 23,1 | 76,5 | 0,6 | 292,5 |
| 21/04/2019 | 10:00 | 758,7 | 24,3 | 71,5 | 1,3 | 236,2 |
| 21/04/2019 | 11:00 | 758,5 | 24,5 | 70,5 | 1,6 | 202,5 |
| 21/04/2019 | 12:00 | 758,2 | 25,1 | 68,0 | 2,2 | 202,5 |
| 21/04/2019 | 13:00 | 757,8 | 24,6 | 69,5 | 2,2 | 202,5 |
| 21/04/2019 | 14:00 | 757,4 | 24,1 | 70,0 | 2,0 | 202,5 |
| 21/04/2019 | 15:00 | 756,9 | 25,0 | 66,5 | 1,3 | 236,2 |
| 21/04/2019 | 16:00 | 756,8 | 24,1 | 69,5 | 1,3 | 236,2 |
| 21/04/2019 | 17:00 | 756,9 | 23,4 | 71,5 | 1,1 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 21/04/2019 | 18:00 | 757,0 | 21,7 | 76,5 | 0,9 | 270,0 |
| 21/04/2019 | 19:00 | 757,5 | 21,3 | 78,5 | 0,4 | 236,2 |
| 21/04/2019 | 20:00 | 758,0 | 21,2 | 80,0 | 0,6 | 238,4 |
| 21/04/2019 | 21:00 | 758,0 | 20,9 | 81,5 | 0,4 | 247,5 |
| 21/04/2019 | 22:00 | 758,0 | 20,8 | 83,5 | 0,4 | 236,2 |
| 21/04/2019 | 23:00 | 758,2 | 20,7 | 84,0 | 0,4 | 225,0 |
| 22/04/2019 | 00:00 | 758,0 | 20,7 | 83,5 | 0,4 | 247,5 |
| 22/04/2019 | 01:00 | 757,6 | 20,6 | 83,0 | 0,4 | 225,0 |
| 22/04/2019 | 02:00 | 757,2 | 20,5 | 83,0 | 0,4 | 247,5 |
| 22/04/2019 | 03:00 | 756,8 | 20,2 | 84,0 | 0,4 | 247,5 |
| 22/04/2019 | 04:00 | 756,8 | 20,2 | 84,0 | 0,2 | 202,5 |
| 22/04/2019 | 05:00 | 756,7 | 20,3 | 83,0 | 0,4 | 202,5 |
| 22/04/2019 | 06:00 | 757,0 | 20,2 | 84,0 | 0,2 | 202,5 |
| 22/04/2019 | 07:00 | 757,5 | 20,5 | 84,5 | 0,4 | 202,5 |
| 22/04/2019 | 08:00 | 758,0 | 21,1 | 81,5 | 0,4 | 270,0 |
| 22/04/2019 | 09:00 | 758,1 | 22,2 | 77,5 | 0,6 | 180,0 |
| 22/04/2019 | 10:00 | 758,0 | 23,9 | 72,5 | 1,3 | 202,5 |
| 22/04/2019 | 11:00 | 757,8 | 24,6 | 69,5 | 1,6 | 211,9 |
| 22/04/2019 | 12:00 | 757,3 | 24,7 | 68,5 | 1,8 | 191,2 |
| 22/04/2019 | 13:00 | 756,9 | 25,2 | 66,5 | 1,8 | 213,7 |
| 22/04/2019 | 14:00 | 756,4 | 25,5 | 63,0 | 1,8 | 236,2 |
| 22/04/2019 | 15:00 | 756,0 | 26,1 | 59,0 | 1,6 | 215,6 |
| 22/04/2019 | 16:00 | 756,0 | 25,8 | 61,0 | 1,3 | 202,5 |
| 22/04/2019 | 17:00 | 756,3 | 24,1 | 68,0 | 1,3 | 236,2 |
| 22/04/2019 | 18:00 | 757,0 | 22,6 | 73,5 | 0,9 | 270,0 |
| 22/04/2019 | 19:00 | 757,4 | 21,9 | 76,5 | 0,9 | 247,5 |
| 22/04/2019 | 20:00 | 757,7 | 21,6 | 78,5 | 0,6 | 209,4 |
| 22/04/2019 | 21:00 | 757,7 | 21,8 | 78,5 | 0,2 | 225,0 |
| 22/04/2019 | 22:00 | 757,8 | 21,2 | 82,0 | 0,4 | 225,0 |
| 22/04/2019 | 23:00 | 757,5 | 20,9 | 83,5 | 0,4 | 225,0 |
| 23/04/2019 | 00:00 | 757,5 | 20,8 | 84,5 | 0,4 | 225,0 |
| 23/04/2019 | 01:00 | 757,5 | 20,6 | 85,0 | 0,6 | 215,9 |
| 23/04/2019 | 02:00 | 757,3 | 20,6 | 85,0 | 0,4 | 225,0 |
| 23/04/2019 | 03:00 | 757,2 | 20,4 | 85,0 | 0,4 | 247,5 |
| 23/04/2019 | 04:00 | 757,1 | 20,4 | 85,5 | 0,4 | 247,5 |
| 23/04/2019 | 05:00 | 757,2 | 20,2 | 85,5 | 0,4 | 225,0 |
| 23/04/2019 | 06:00 | 757,5 | 20,1 | 87,0 | 0,4 | 270,0 |
| 23/04/2019 | 07:00 | 758,0 | 20,6 | 85,5 | 0,4 | 337,5 |
| 23/04/2019 | 08:00 | 758,4 | 21,2 | 83,0 | 0,9 | 202,5 |
| 23/04/2019 | 09:00 | 758,2 | 22,5 | 79,0 | 0,9 | 225,0 |
| 23/04/2019 | 10:00 | 758,0 | 23,9 | 73,5 | 1,3 | 270,0 |
| 23/04/2019 | 11:00 | 757,7 | 24,4 | 72,0 | 1,3 | 213,7 |
| 23/04/2019 | 12:00 | 757,3 | 24,5 | 71,0 | 1,8 | 236,2 |
| 23/04/2019 | 13:00 | 757,4 | 24,2 | 70,5 | 1,8 | 261,7 |
| 23/04/2019 | 14:00 | 756,8 | 25,4 | 65,5 | 1,6 | 202,5 |
| 23/04/2019 | 15:00 | 756,3 | 25,2 | 64,5 | 1,8 | 213,7 |
| 23/04/2019 | 16:00 | 756,6 | 24,5 | 68,0 | 1,6 | 202,5 |
| 23/04/2019 | 17:00 | 757,0 | 23,5 | 71,5 | 1,3 | 270,0 |
| 23/04/2019 | 18:00 | 757,2 | 22,2 | 76,5 | 1,1 | 270,0 |
| 23/04/2019 | 19:00 | 757,5 | 22,1 | 77,5 | 0,9 | 270,0 |
| 23/04/2019 | 20:00 | 757,8 | 22,1 | 77,0 | 0,9 | 292,5 |
| 23/04/2019 | 21:00 | 758,2 | 22,0 | 77,5 | 0,9 | 303,8 |
| 23/04/2019 | 22:00 | 758,2 | 22,0 | 78,5 | 0,4 | 270,0 |
| 23/04/2019 | 23:00 | 758,0 | 22,0 | 78,0 | 0,6 | 308,1 |
| 24/04/2019 | 00:00 | 757,8 | 22,0 | 78,5 | 0,4 | 292,5 |
| 24/04/2019 | 01:00 | 757,0 | 21,7 | 80,5 | 0,2 | 292,5 |
| 24/04/2019 | 02:00 | 756,7 | 21,6 | 81,5 | 0,4 | 281,2 |
| 24/04/2019 | 03:00 | 756,7 | 21,3 | 83,5 | 0,2 | 270,0 |
| 24/04/2019 | 04:00 | 756,7 | 21,2 | 83,5 | 0,4 | 225,0 |
| 24/04/2019 | 05:00 | 756,8 | 21,1 | 83,0 | 0,4 | 258,8 |
| 24/04/2019 | 06:00 | 757,0 | 21,1 | 83,0 | 0,4 | 225,0 |
| 24/04/2019 | 07:00 | 757,3 | 21,5 | 81,5 | 0,4 | 247,5 |
| 24/04/2019 | 08:00 | 757,4 | 22,9 | 78,0 | 0,4 | 247,5 |
| 24/04/2019 | 09:00 | 757,7 | 24,1 | 74,0 | 1,1 | 235,3 |
| 24/04/2019 | 10:00 | 757,5 | 25,9 | 66,0 | 1,6 | 270,0 |
| 24/04/2019 | 11:00 | 757,3 | 26,8 | 64,0 | 1,6 | 242,4 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 24/04/2019 | 12:00 | 757,0 | 26,6 | 63,0 | 1,8 | 236,2 |
| 24/04/2019 | 13:00 | 756,8 | 25,6 | 63,5 | 2,0 | 270,0 |
| 24/04/2019 | 14:00 | 756,1 | 25,6 | 65,5 | 1,3 | 202,5 |
| 24/04/2019 | 15:00 | 755,7 | 25,3 | 67,0 | 1,4 | 243,4 |
| 24/04/2019 | 16:00 | 755,3 | 24,2 | 70,5 | 1,6 | 270,0 |
| 24/04/2019 | 17:00 | 755,9 | 22,6 | 75,0 | 1,3 | 270,0 |
| 24/04/2019 | 18:00 | 756,1 | 22,4 | 76,5 | 1,1 | 271,2 |
| 24/04/2019 | 19:00 | 756,5 | 22,1 | 76,5 | 0,9 | 270,0 |
| 24/04/2019 | 20:00 | 757,0 | 21,8 | 78,5 | 0,9 | 270,0 |
| 24/04/2019 | 21:00 | 757,3 | 21,5 | 80,0 | 0,6 | 315,0 |
| 24/04/2019 | 22:00 | 757,5 | 21,5 | 80,5 | 0,4 | 281,2 |
| 24/04/2019 | 23:00 | 757,6 | 21,4 | 82,0 | 0,4 | 281,2 |
| 25/04/2019 | 00:00 | 757,1 | 21,4 | 81,0 | 0,4 | 292,5 |
| 25/04/2019 | 01:00 | 756,6 | 21,0 | 81,5 | 0,6 | 209,4 |
| 25/04/2019 | 02:00 | 756,0 | 20,8 | 82,0 | 0,6 | 228,8 |
| 25/04/2019 | 03:00 | 755,9 | 20,6 | 83,0 | 0,4 | 292,5 |
| 25/04/2019 | 04:00 | 755,9 | 20,6 | 83,5 | 0,4 | 225,0 |
| 25/04/2019 | 05:00 | 756,2 | 20,7 | 83,0 | 0,4 | 270,0 |
| 25/04/2019 | 06:00 | 756,9 | 20,8 | 82,5 | 0,4 | 270,0 |
| 25/04/2019 | 07:00 | 757,5 | 21,1 | 82,5 | 0,9 | 168,7 |
| 25/04/2019 | 08:00 | 758,0 | 21,5 | 81,5 | 1,1 | 153,2 |
| 25/04/2019 | 09:00 | 758,1 | 22,4 | 78,0 | 1,3 | 180,0 |
| 25/04/2019 | 10:00 | 758,0 | 24,0 | 72,5 | 1,3 | 236,2 |
| 25/04/2019 | 11:00 | 757,7 | 24,7 | 70,0 | 1,6 | 270,0 |
| 25/04/2019 | 12:00 | 757,4 | 24,1 | 71,5 | 1,6 | 270,0 |
| 25/04/2019 | 13:00 | 757,0 | 24,8 | 69,0 | 1,8 | 191,2 |
| 25/04/2019 | 14:00 | 756,4 | 25,5 | 66,5 | 1,8 | 258,8 |
| 25/04/2019 | 15:00 | 756,0 | 25,6 | 65,5 | 1,6 | 189,4 |
| 25/04/2019 | 16:00 | 755,9 | 25,4 | 66,0 | 1,6 | 234,2 |
| 25/04/2019 | 17:00 | 756,2 | 23,6 | 71,5 | 1,1 | 292,5 |
| 25/04/2019 | 18:00 | 756,6 | 22,3 | 76,0 | 0,9 | 281,2 |
| 25/04/2019 | 19:00 | 757,0 | 21,4 | 80,5 | 0,9 | 270,0 |
| 25/04/2019 | 20:00 | 757,4 | 21,3 | 81,0 | 0,6 | 240,6 |
| 25/04/2019 | 21:00 | 757,7 | 21,1 | 82,0 | 0,6 | 226,5 |
| 25/04/2019 | 22:00 | 757,6 | 20,9 | 82,5 | 0,6 | 256,6 |
| 25/04/2019 | 23:00 | 757,6 | 20,6 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 00:00 | 757,5 | 20,6 | 82,5 | 0,6 | 285,6 |
| 26/04/2019 | 01:00 | 757,0 | 20,6 | 81,5 | 0,6 | 292,5 |
| 26/04/2019 | 02:00 | 756,8 | 20,4 | 81,5 | 0,9 | 292,5 |
| 26/04/2019 | 03:00 | 756,8 | 20,2 | 82,5 | 0,9 | 281,2 |
| 26/04/2019 | 04:00 | 756,8 | 20,1 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 05:00 | 757,0 | 20,1 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 06:00 | 757,2 | 20,1 | 83,0 | 0,4 | 281,2 |
| 26/04/2019 | 07:00 | 757,8 | 20,0 | 84,0 | 0,6 | 270,0 |
| 26/04/2019 | 08:00 | 758,0 | 20,6 | 82,5 | 0,6 | 221,8 |
| 26/04/2019 | 09:00 | 758,3 | 21,7 | 79,0 | 1,1 | 202,5 |
| 26/04/2019 | 10:00 | 758,2 | 22,8 | 75,0 | 1,3 | 236,2 |
| 26/04/2019 | 11:00 | 757,8 | 23,9 | 72,0 | 1,3 | 236,2 |
| 26/04/2019 | 12:00 | 756,9 | 24,1 | 70,5 | 1,6 | 238,3 |
| 26/04/2019 | 13:00 | 756,3 | 23,6 | 71,5 | 1,3 | 236,2 |
| 26/04/2019 | 14:00 | 756,0 | 23,5 | 71,0 | 1,6 | 242,4 |
| 26/04/2019 | 15:00 | 755,5 | 23,2 | 72,5 | 1,3 | 270,0 |
| 26/04/2019 | 16:00 | 755,3 | 23,8 | 71,0 | 1,6 | 242,4 |
| 26/04/2019 | 17:00 | 755,2 | 22,6 | 74,0 | 1,6 | 251,3 |
| 26/04/2019 | 18:00 | 755,5 | 22,0 | 76,5 | 1,3 | 180,0 |
| 26/04/2019 | 19:00 | 756,0 | 22,1 | 76,5 | 0,9 | 157,5 |
| 26/04/2019 | 20:00 | 756,4 | 22,0 | 75,5 | 0,9 | 247,5 |
| 26/04/2019 | 21:00 | 756,7 | 21,5 | 77,0 | 0,9 | 315,0 |
| 26/04/2019 | 22:00 | 756,7 | 21,2 | 77,0 | 0,6 | 292,5 |
| 26/04/2019 | 23:00 | 756,8 | 20,6 | 78,5 | 0,9 | 292,5 |
| 27/04/2019 | 00:00 | 756,5 | 20,4 | 79,5 | 0,4 | 270,0 |
| 27/04/2019 | 01:00 | 756,2 | 20,3 | 79,0 | 0,9 | 180,0 |
| 27/04/2019 | 02:00 | 755,8 | 20,3 | 79,5 | 0,4 | 225,0 |
| 27/04/2019 | 03:00 | 755,7 | 20,0 | 80,5 | 0,9 | 281,2 |
| 27/04/2019 | 04:00 | 755,8 | 19,5 | 82,0 | 0,6 | 270,0 |
| 27/04/2019 | 05:00 | 755,7 | 19,6 | 81,5 | 0,6 | 292,5 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-6

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|--------------|-------------|-------------|-------------|-----------|-----------|-----------|
| 27/04/2019 | 06:00 | 756,0 | 19,6 | 82,0 | 0,4 | 258,8 |
| 27/04/2019 | 07:00 | 756,4 | 19,6 | 82,5 | 0,6 | 247,5 |
| 27/04/2019 | 08:00 | 756,8 | 19,6 | 83,0 | 0,9 | 247,5 |
| 27/04/2019 | 09:00 | 757,2 | 20,1 | 82,0 | 0,9 | 247,5 |
| 27/04/2019 | 10:00 | 753,2 | 20,6 | 79,5 | 0,9 | 270,0 |
| 27/04/2019 | 11:00 | 753,0 | 21,5 | 76,5 | 1,3 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 08/04/2019 | 00:00 | 753,7 | 21,8 | 80,5 | 0,2 | 225,0 |
| 08/04/2019 | 01:00 | 753,5 | 21,6 | 81,0 | 0,4 | 168,7 |
| 08/04/2019 | 02:00 | 753,2 | 21,2 | 82,0 | 0,6 | 180,0 |
| 08/04/2019 | 03:00 | 753,0 | 20,9 | 83,0 | 0,4 | 180,0 |
| 08/04/2019 | 04:00 | 752,8 | 20,8 | 84,0 | 0,2 | 180,0 |
| 08/04/2019 | 05:00 | 752,8 | 20,4 | 84,0 | 0,0 | 0,0 |
| 08/04/2019 | 06:00 | 753,0 | 20,2 | 85,0 | 0,0 | 0,0 |
| 08/04/2019 | 07:00 | 753,6 | 20,2 | 86,0 | 0,2 | 180,0 |
| 08/04/2019 | 08:00 | 754,2 | 21,1 | 86,0 | 0,6 | 218,1 |
| 08/04/2019 | 09:00 | 754,4 | 24,3 | 75,5 | 1,1 | 243,2 |
| 08/04/2019 | 10:00 | 754,3 | 26,8 | 68,5 | 1,3 | 236,2 |
| 08/04/2019 | 11:00 | 754,0 | 26,9 | 67,5 | 1,6 | 260,6 |
| 08/04/2019 | 12:00 | 753,2 | 27,7 | 64,0 | 2,2 | 270,0 |
| 08/04/2019 | 13:00 | 752,8 | 28,4 | 67,0 | 2,5 | 270,0 |
| 08/04/2019 | 14:00 | 752,5 | 27,3 | 70,5 | 2,5 | 270,0 |
| 08/04/2019 | 15:00 | 752,3 | 26,5 | 71,5 | 2,2 | 270,0 |
| 08/04/2019 | 16:00 | 752,4 | 25,6 | 73,0 | 2,0 | 270,0 |
| 08/04/2019 | 17:00 | 752,7 | 24,2 | 74,5 | 1,6 | 270,0 |
| 08/04/2019 | 18:00 | 753,0 | 23,4 | 75,0 | 1,3 | 292,5 |
| 08/04/2019 | 19:00 | 753,8 | 23,0 | 76,0 | 0,9 | 281,2 |
| 08/04/2019 | 20:00 | 754,0 | 23,4 | 75,0 | 0,4 | 157,5 |
| 08/04/2019 | 21:00 | 754,2 | 23,2 | 75,5 | 0,6 | 244,3 |
| 08/04/2019 | 22:00 | 754,2 | 22,9 | 76,0 | 0,9 | 247,5 |
| 08/04/2019 | 23:00 | 754,0 | 22,6 | 76,0 | 0,4 | 180,0 |
| 09/04/2019 | 00:00 | 753,9 | 22,5 | 76,5 | 0,4 | 168,7 |
| 09/04/2019 | 01:00 | 753,4 | 22,2 | 77,0 | 0,4 | 180,0 |
| 09/04/2019 | 02:00 | 753,1 | 21,8 | 77,0 | 0,6 | 164,4 |
| 09/04/2019 | 03:00 | 752,9 | 21,1 | 78,5 | 0,6 | 186,9 |
| 09/04/2019 | 04:00 | 752,9 | 20,8 | 79,0 | 0,6 | 182,1 |
| 09/04/2019 | 05:00 | 753,2 | 20,5 | 79,5 | 0,4 | 225,0 |
| 09/04/2019 | 06:00 | 753,5 | 20,3 | 80,0 | 0,4 | 168,7 |
| 09/04/2019 | 07:00 | 753,9 | 20,5 | 80,5 | 0,4 | 225,0 |
| 09/04/2019 | 08:00 | 754,4 | 21,8 | 77,5 | 0,2 | 225,0 |
| 09/04/2019 | 09:00 | 754,5 | 24,5 | 70,0 | 1,1 | 238,3 |
| 09/04/2019 | 10:00 | 754,7 | 25,9 | 65,5 | 1,6 | 247,5 |
| 09/04/2019 | 11:00 | 754,4 | 26,2 | 64,0 | 2,0 | 270,0 |
| 09/04/2019 | 12:00 | 753,9 | 27,1 | 67,0 | 2,0 | 270,0 |
| 09/04/2019 | 13:00 | 753,2 | 27,7 | 65,0 | 2,7 | 270,0 |
| 09/04/2019 | 14:00 | 752,7 | 27,5 | 65,5 | 2,9 | 270,0 |
| 09/04/2019 | 15:00 | 752,3 | 25,9 | 69,0 | 3,1 | 270,0 |
| 09/04/2019 | 16:00 | 752,4 | 26,0 | 67,5 | 2,5 | 259,9 |
| 09/04/2019 | 17:00 | 752,6 | 25,6 | 67,5 | 2,2 | 184,7 |
| 09/04/2019 | 18:00 | 753,1 | 23,4 | 73,0 | 2,0 | 272,4 |
| 09/04/2019 | 19:00 | 753,5 | 22,3 | 75,0 | 1,6 | 283,1 |
| 09/04/2019 | 20:00 | 753,8 | 22,6 | 74,5 | 1,3 | 180,0 |
| 09/04/2019 | 21:00 | 754,0 | 22,4 | 75,0 | 0,8 | 185,2 |
| 09/04/2019 | 22:00 | 754,2 | 21,9 | 75,5 | 0,9 | 270,0 |
| 09/04/2019 | 23:00 | 753,8 | 21,3 | 76,0 | 0,9 | 292,5 |
| 10/04/2019 | 00:00 | 753,6 | 20,8 | 77,0 | 0,6 | 279,1 |
| 10/04/2019 | 01:00 | 753,5 | 20,4 | 76,0 | 0,4 | 247,5 |
| 10/04/2019 | 02:00 | 753,2 | 20,2 | 76,5 | 0,2 | 292,5 |
| 10/04/2019 | 03:00 | 753,1 | 19,9 | 77,5 | 0,6 | 285,6 |
| 10/04/2019 | 04:00 | 753,3 | 19,6 | 78,0 | 0,4 | 292,5 |
| 10/04/2019 | 05:00 | 753,4 | 19,3 | 79,0 | 0,0 | 0,0 |
| 10/04/2019 | 06:00 | 753,8 | 19,4 | 80,0 | 0,2 | 22,5 |
| 10/04/2019 | 07:00 | 754,2 | 19,6 | 79,5 | 0,4 | 247,5 |
| 10/04/2019 | 08:00 | 754,5 | 20,9 | 77,0 | 0,6 | 234,1 |
| 10/04/2019 | 09:00 | 754,6 | 23,4 | 70,0 | 1,1 | 235,3 |
| 10/04/2019 | 10:00 | 754,8 | 25,0 | 68,0 | 1,8 | 258,8 |
| 10/04/2019 | 11:00 | 754,6 | 25,7 | 69,0 | 2,0 | 247,5 |
| 10/04/2019 | 12:00 | 754,1 | 25,7 | 69,0 | 2,0 | 270,0 |
| 10/04/2019 | 13:00 | 753,5 | 26,5 | 67,5 | 2,0 | 249,9 |
| 10/04/2019 | 14:00 | 753,0 | 26,4 | 67,0 | 2,0 | 270,0 |
| 10/04/2019 | 15:00 | 752,8 | 25,7 | 68,5 | 1,8 | 270,0 |
| 10/04/2019 | 16:00 | 752,7 | 25,0 | 70,5 | 1,3 | 258,8 |
| 10/04/2019 | 17:00 | 752,9 | 24,3 | 72,5 | 1,3 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 10/04/2019 | 18:00 | 753,3 | 22,8 | 74,5 | 1,3 | 270,0 |
| 10/04/2019 | 19:00 | 753,7 | 21,6 | 76,5 | 1,1 | 283,3 |
| 10/04/2019 | 20:00 | 753,9 | 21,1 | 77,0 | 0,4 | 270,0 |
| 10/04/2019 | 21:00 | 754,0 | 21,1 | 77,0 | 0,9 | 292,5 |
| 10/04/2019 | 22:00 | 753,7 | 20,9 | 77,0 | 0,6 | 260,9 |
| 10/04/2019 | 23:00 | 753,5 | 20,5 | 77,0 | 0,9 | 281,2 |
| 11/04/2019 | 00:00 | 753,4 | 20,3 | 77,0 | 0,2 | 292,5 |
| 11/04/2019 | 01:00 | 753,0 | 20,1 | 77,5 | 0,4 | 236,2 |
| 11/04/2019 | 02:00 | 752,5 | 19,8 | 78,0 | 0,4 | 225,0 |
| 11/04/2019 | 03:00 | 752,3 | 19,6 | 79,0 | 0,2 | 180,0 |
| 11/04/2019 | 04:00 | 752,2 | 19,4 | 79,0 | 0,0 | 0,0 |
| 11/04/2019 | 05:00 | 752,5 | 19,2 | 79,0 | 0,2 | 180,0 |
| 11/04/2019 | 06:00 | 753,1 | 19,2 | 79,0 | 0,4 | 168,7 |
| 11/04/2019 | 07:00 | 753,5 | 19,6 | 79,0 | 0,4 | 157,5 |
| 11/04/2019 | 08:00 | 753,7 | 21,0 | 76,5 | 0,6 | 205,7 |
| 11/04/2019 | 09:00 | 753,8 | 23,7 | 70,0 | 1,1 | 247,5 |
| 11/04/2019 | 10:00 | 754,0 | 26,0 | 64,0 | 1,3 | 225,0 |
| 11/04/2019 | 11:00 | 753,4 | 27,1 | 63,5 | 1,8 | 225,0 |
| 11/04/2019 | 12:00 | 753,2 | 26,4 | 68,0 | 2,0 | 214,9 |
| 11/04/2019 | 13:00 | 752,8 | 27,0 | 65,0 | 1,8 | 247,5 |
| 11/04/2019 | 14:00 | 752,1 | 27,2 | 64,0 | 1,6 | 270,0 |
| 11/04/2019 | 15:00 | 751,5 | 26,8 | 63,5 | 2,2 | 270,0 |
| 11/04/2019 | 16:00 | 751,6 | 25,5 | 70,0 | 2,5 | 282,4 |
| 11/04/2019 | 17:00 | 752,0 | 23,6 | 74,5 | 2,2 | 292,5 |
| 11/04/2019 | 18:00 | 752,0 | 23,1 | 75,0 | 1,1 | 292,5 |
| 11/04/2019 | 19:00 | 752,2 | 23,6 | 73,0 | 0,4 | 213,7 |
| 11/04/2019 | 20:00 | 752,2 | 23,2 | 74,5 | 0,6 | 211,6 |
| 11/04/2019 | 21:00 | 752,5 | 22,7 | 75,0 | 0,4 | 191,2 |
| 11/04/2019 | 22:00 | 752,6 | 22,2 | 75,5 | 0,6 | 186,9 |
| 11/04/2019 | 23:00 | 752,6 | 21,6 | 76,0 | 0,6 | 166,6 |
| 12/04/2019 | 00:00 | 752,2 | 21,0 | 77,0 | 0,9 | 168,7 |
| 12/04/2019 | 01:00 | 752,0 | 20,8 | 77,5 | 0,4 | 157,5 |
| 12/04/2019 | 02:00 | 751,8 | 20,3 | 78,0 | 0,6 | 112,5 |
| 12/04/2019 | 03:00 | 752,0 | 20,3 | 78,0 | 0,6 | 178,5 |
| 12/04/2019 | 04:00 | 752,2 | 19,9 | 79,5 | 0,6 | 180,0 |
| 12/04/2019 | 05:00 | 752,2 | 19,8 | 80,0 | 0,2 | 180,0 |
| 12/04/2019 | 06:00 | 752,5 | 19,9 | 79,5 | 0,0 | 0,0 |
| 12/04/2019 | 07:00 | 753,3 | 19,9 | 79,5 | 0,4 | 168,7 |
| 12/04/2019 | 08:00 | 753,8 | 21,1 | 78,0 | 0,6 | 218,1 |
| 12/04/2019 | 09:00 | 753,8 | 23,6 | 71,0 | 1,1 | 238,3 |
| 12/04/2019 | 10:00 | 753,7 | 26,2 | 62,5 | 1,1 | 238,3 |
| 12/04/2019 | 11:00 | 753,1 | 26,6 | 66,5 | 1,8 | 270,0 |
| 12/04/2019 | 12:00 | 752,6 | 26,6 | 67,5 | 2,0 | 270,0 |
| 12/04/2019 | 13:00 | 752,2 | 27,0 | 65,5 | 2,0 | 270,0 |
| 12/04/2019 | 14:00 | 751,8 | 27,0 | 64,5 | 1,8 | 270,0 |
| 12/04/2019 | 15:00 | 751,3 | 26,9 | 63,5 | 2,0 | 270,0 |
| 12/04/2019 | 16:00 | 751,3 | 26,3 | 67,0 | 1,8 | 253,6 |
| 12/04/2019 | 17:00 | 751,5 | 24,9 | 70,0 | 1,8 | 270,0 |
| 12/04/2019 | 18:00 | 751,5 | 23,1 | 73,5 | 1,3 | 281,2 |
| 12/04/2019 | 19:00 | 752,0 | 22,8 | 74,5 | 0,9 | 292,5 |
| 12/04/2019 | 20:00 | 752,3 | 22,8 | 74,0 | 0,4 | 281,2 |
| 12/04/2019 | 21:00 | 752,3 | 22,5 | 74,0 | 0,4 | 168,7 |
| 12/04/2019 | 22:00 | 752,5 | 22,1 | 75,0 | 0,4 | 135,0 |
| 12/04/2019 | 23:00 | 752,8 | 21,5 | 76,0 | 0,4 | 135,0 |
| 13/04/2019 | 00:00 | 752,7 | 21,2 | 76,0 | 0,4 | 135,0 |
| 13/04/2019 | 01:00 | 752,4 | 20,6 | 77,0 | 0,6 | 131,8 |
| 13/04/2019 | 02:00 | 752,2 | 20,3 | 77,0 | 0,4 | 157,5 |
| 13/04/2019 | 03:00 | 752,4 | 19,8 | 78,5 | 0,4 | 213,7 |
| 13/04/2019 | 04:00 | 752,5 | 19,5 | 79,5 | 0,4 | 236,2 |
| 13/04/2019 | 05:00 | 752,4 | 19,4 | 80,5 | 0,2 | 247,5 |
| 13/04/2019 | 06:00 | 753,0 | 19,5 | 81,0 | 0,2 | 270,0 |
| 13/04/2019 | 07:00 | 753,6 | 19,8 | 81,0 | 0,2 | 225,0 |
| 13/04/2019 | 08:00 | 753,9 | 20,9 | 78,0 | 0,6 | 279,1 |
| 13/04/2019 | 09:00 | 754,0 | 23,4 | 71,5 | 0,9 | 258,8 |
| 13/04/2019 | 10:00 | 754,2 | 25,2 | 65,5 | 1,3 | 247,5 |
| 13/04/2019 | 11:00 | 753,6 | 25,9 | 68,0 | 1,6 | 270,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 13/04/2019 | 12:00 | 753,0 | 26,2 | 66,5 | 2,0 | 270,0 |
| 13/04/2019 | 13:00 | 752,2 | 27,4 | 63,5 | 1,8 | 258,8 |
| 13/04/2019 | 14:00 | 751,9 | 26,5 | 64,5 | 2,0 | 257,6 |
| 13/04/2019 | 15:00 | 751,4 | 26,6 | 65,5 | 1,8 | 258,8 |
| 13/04/2019 | 16:00 | 751,5 | 25,9 | 68,0 | 1,8 | 258,8 |
| 13/04/2019 | 17:00 | 751,7 | 24,4 | 72,0 | 1,6 | 256,9 |
| 13/04/2019 | 18:00 | 751,8 | 22,6 | 74,5 | 1,1 | 270,0 |
| 13/04/2019 | 19:00 | 752,2 | 21,8 | 75,5 | 0,9 | 281,2 |
| 13/04/2019 | 20:00 | 752,5 | 21,9 | 75,5 | 0,4 | 258,8 |
| 13/04/2019 | 21:00 | 752,8 | 21,6 | 76,0 | 0,4 | 236,2 |
| 13/04/2019 | 22:00 | 753,0 | 21,4 | 76,0 | 0,4 | 225,0 |
| 13/04/2019 | 23:00 | 752,8 | 21,0 | 77,0 | 0,4 | 180,0 |
| 14/04/2019 | 00:00 | 752,7 | 20,6 | 77,0 | 0,6 | 157,5 |
| 14/04/2019 | 01:00 | 752,4 | 20,1 | 78,0 | 0,6 | 202,5 |
| 14/04/2019 | 02:00 | 752,2 | 19,8 | 79,5 | 0,4 | 157,5 |
| 14/04/2019 | 03:00 | 751,9 | 19,6 | 80,5 | 0,4 | 157,5 |
| 14/04/2019 | 04:00 | 751,8 | 19,4 | 81,0 | 0,4 | 157,5 |
| 14/04/2019 | 05:00 | 751,9 | 19,2 | 82,0 | 0,4 | 157,5 |
| 14/04/2019 | 06:00 | 752,4 | 19,1 | 82,0 | 0,4 | 157,5 |
| 14/04/2019 | 07:00 | 753,1 | 19,2 | 82,5 | 0,2 | 157,5 |
| 14/04/2019 | 08:00 | 753,5 | 20,0 | 81,5 | 0,4 | 157,5 |
| 14/04/2019 | 09:00 | 753,7 | 22,9 | 74,0 | 0,9 | 236,2 |
| 14/04/2019 | 10:00 | 754,0 | 25,6 | 66,0 | 1,6 | 243,7 |
| 14/04/2019 | 11:00 | 754,0 | 26,3 | 63,5 | 1,6 | 215,6 |
| 14/04/2019 | 12:00 | 753,5 | 26,9 | 62,5 | 1,8 | 247,5 |
| 14/04/2019 | 13:00 | 753,0 | 27,3 | 62,0 | 1,8 | 258,8 |
| 14/04/2019 | 14:00 | 752,5 | 26,8 | 63,0 | 1,8 | 270,0 |
| 14/04/2019 | 15:00 | 752,0 | 27,1 | 59,5 | 1,6 | 260,6 |
| 14/04/2019 | 16:00 | 751,9 | 26,4 | 63,0 | 1,3 | 258,8 |
| 14/04/2019 | 17:00 | 752,1 | 24,9 | 70,5 | 1,3 | 258,8 |
| 14/04/2019 | 18:00 | 752,3 | 22,4 | 75,5 | 1,1 | 283,3 |
| 14/04/2019 | 19:00 | 752,8 | 22,0 | 76,0 | 0,6 | 292,5 |
| 14/04/2019 | 20:00 | 753,0 | 21,9 | 76,0 | 0,6 | 225,0 |
| 14/04/2019 | 21:00 | 753,2 | 21,8 | 76,0 | 0,4 | 225,0 |
| 14/04/2019 | 22:00 | 753,2 | 21,4 | 76,5 | 0,6 | 231,9 |
| 14/04/2019 | 23:00 | 753,0 | 20,9 | 77,0 | 0,4 | 247,5 |
| 15/04/2019 | 00:00 | 752,8 | 20,6 | 77,0 | 0,4 | 202,5 |
| 15/04/2019 | 01:00 | 752,5 | 20,2 | 78,5 | 0,4 | 247,5 |
| 15/04/2019 | 02:00 | 752,2 | 20,0 | 79,0 | 0,4 | 180,0 |
| 15/04/2019 | 03:00 | 752,1 | 19,7 | 80,5 | 0,6 | 182,1 |
| 15/04/2019 | 04:00 | 752,0 | 19,4 | 81,5 | 0,2 | 202,5 |
| 15/04/2019 | 05:00 | 752,2 | 19,1 | 83,0 | 0,4 | 180,0 |
| 15/04/2019 | 06:00 | 752,9 | 19,0 | 83,0 | 0,2 | 180,0 |
| 15/04/2019 | 07:00 | 753,6 | 19,2 | 84,0 | 0,2 | 180,0 |
| 15/04/2019 | 08:00 | 754,0 | 20,5 | 81,5 | 0,2 | 202,5 |
| 15/04/2019 | 09:00 | 754,2 | 22,9 | 74,5 | 0,8 | 242,3 |
| 15/04/2019 | 10:00 | 754,2 | 25,9 | 65,5 | 1,3 | 225,0 |
| 15/04/2019 | 11:00 | 753,9 | 27,3 | 62,0 | 1,6 | 270,0 |
| 15/04/2019 | 12:00 | 753,7 | 27,1 | 64,5 | 1,8 | 225,0 |
| 15/04/2019 | 13:00 | 753,2 | 27,7 | 66,0 | 1,8 | 270,0 |
| 15/04/2019 | 14:00 | 752,8 | 27,5 | 65,5 | 1,8 | 270,0 |
| 15/04/2019 | 15:00 | 752,2 | 27,8 | 65,0 | 1,8 | 247,5 |
| 15/04/2019 | 16:00 | 752,2 | 26,7 | 67,0 | 1,3 | 258,8 |
| 15/04/2019 | 17:00 | 752,3 | 25,5 | 69,0 | 1,3 | 258,8 |
| 15/04/2019 | 18:00 | 752,4 | 24,1 | 72,5 | 0,6 | 270,0 |
| 15/04/2019 | 19:00 | 753,0 | 23,5 | 73,5 | 0,4 | 213,7 |
| 15/04/2019 | 20:00 | 753,5 | 23,0 | 74,5 | 0,6 | 186,9 |
| 15/04/2019 | 21:00 | 753,8 | 22,4 | 75,5 | 0,6 | 157,5 |
| 15/04/2019 | 22:00 | 754,1 | 21,9 | 76,0 | 0,4 | 157,5 |
| 15/04/2019 | 23:00 | 754,0 | 21,4 | 77,0 | 0,4 | 146,2 |
| 16/04/2019 | 00:00 | 753,8 | 20,8 | 77,5 | 0,4 | 157,5 |
| 16/04/2019 | 01:00 | 753,4 | 20,4 | 78,5 | 0,9 | 135,0 |
| 16/04/2019 | 02:00 | 752,8 | 20,3 | 79,0 | 0,4 | 157,5 |
| 16/04/2019 | 03:00 | 752,6 | 20,3 | 79,0 | 0,0 | 0,0 |
| 16/04/2019 | 04:00 | 752,7 | 20,0 | 80,0 | 0,4 | 168,7 |
| 16/04/2019 | 05:00 | 752,4 | 19,8 | 80,5 | 0,4 | 168,7 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 16/04/2019 | 06:00 | 752,8 | 19,3 | 82,5 | 0,4 | 146,2 |
| 16/04/2019 | 07:00 | 753,3 | 19,5 | 83,0 | 0,4 | 135,0 |
| 16/04/2019 | 08:00 | 753,9 | 20,4 | 82,0 | 0,6 | 228,2 |
| 16/04/2019 | 09:00 | 754,0 | 22,8 | 75,5 | 0,6 | 254,4 |
| 16/04/2019 | 10:00 | 754,1 | 25,9 | 66,5 | 1,3 | 247,5 |
| 16/04/2019 | 11:00 | 754,0 | 26,0 | 65,5 | 1,8 | 236,2 |
| 16/04/2019 | 12:00 | 753,5 | 26,6 | 63,5 | 1,3 | 247,5 |
| 16/04/2019 | 13:00 | 752,9 | 27,8 | 63,0 | 1,6 | 234,4 |
| 16/04/2019 | 14:00 | 752,4 | 27,4 | 66,5 | 1,8 | 258,8 |
| 16/04/2019 | 15:00 | 751,9 | 27,5 | 66,5 | 1,6 | 247,5 |
| 16/04/2019 | 16:00 | 751,7 | 27,4 | 67,5 | 1,3 | 202,5 |
| 16/04/2019 | 17:00 | 752,0 | 25,9 | 69,0 | 1,1 | 229,3 |
| 16/04/2019 | 18:00 | 752,3 | 23,9 | 73,5 | 0,8 | 237,4 |
| 16/04/2019 | 19:00 | 752,7 | 23,2 | 75,0 | 0,6 | 186,9 |
| 16/04/2019 | 20:00 | 753,2 | 22,5 | 76,0 | 0,6 | 270,0 |
| 16/04/2019 | 21:00 | 753,5 | 22,3 | 76,0 | 0,6 | 240,6 |
| 16/04/2019 | 22:00 | 753,4 | 22,1 | 76,0 | 0,4 | 180,0 |
| 16/04/2019 | 23:00 | 753,3 | 22,1 | 76,0 | 0,4 | 202,5 |
| 17/04/2019 | 00:00 | 753,1 | 21,5 | 77,0 | 0,6 | 195,6 |
| 17/04/2019 | 01:00 | 752,8 | 21,0 | 77,5 | 0,6 | 157,5 |
| 17/04/2019 | 02:00 | 752,5 | 20,6 | 78,5 | 0,4 | 157,5 |
| 17/04/2019 | 03:00 | 752,2 | 20,6 | 79,5 | 0,4 | 202,5 |
| 17/04/2019 | 04:00 | 752,2 | 20,3 | 80,0 | 0,4 | 180,0 |
| 17/04/2019 | 05:00 | 752,4 | 20,0 | 80,5 | 0,4 | 202,5 |
| 17/04/2019 | 06:00 | 752,8 | 19,8 | 81,5 | 0,2 | 202,5 |
| 17/04/2019 | 07:00 | 753,4 | 20,1 | 81,0 | 0,2 | 180,0 |
| 17/04/2019 | 08:00 | 753,6 | 21,5 | 78,0 | 0,2 | 225,0 |
| 17/04/2019 | 09:00 | 754,0 | 23,6 | 72,5 | 1,3 | 236,2 |
| 17/04/2019 | 10:00 | 754,0 | 26,1 | 65,5 | 1,1 | 251,8 |
| 17/04/2019 | 11:00 | 753,7 | 26,8 | 62,5 | 1,8 | 258,8 |
| 17/04/2019 | 12:00 | 753,3 | 27,6 | 60,5 | 1,6 | 260,6 |
| 17/04/2019 | 13:00 | 752,9 | 26,2 | 68,5 | 2,0 | 270,0 |
| 17/04/2019 | 14:00 | 752,0 | 25,8 | 69,5 | 1,8 | 270,0 |
| 17/04/2019 | 15:00 | 751,8 | 25,9 | 69,5 | 1,6 | 260,6 |
| 17/04/2019 | 16:00 | 751,8 | 24,4 | 73,0 | 1,6 | 270,0 |
| 17/04/2019 | 17:00 | 751,8 | 24,6 | 73,0 | 1,1 | 251,8 |
| 17/04/2019 | 18:00 | 752,1 | 23,2 | 74,5 | 0,9 | 247,5 |
| 17/04/2019 | 19:00 | 752,6 | 21,9 | 76,0 | 0,6 | 225,0 |
| 17/04/2019 | 20:00 | 753,0 | 21,5 | 76,5 | 0,6 | 256,6 |
| 17/04/2019 | 21:00 | 753,2 | 21,2 | 77,0 | 0,4 | 202,5 |
| 17/04/2019 | 22:00 | 753,2 | 21,0 | 77,5 | 0,4 | 191,2 |
| 17/04/2019 | 23:00 | 753,1 | 20,9 | 78,5 | 0,2 | 225,0 |
| 18/04/2019 | 00:00 | 752,9 | 20,6 | 79,5 | 0,4 | 202,5 |
| 18/04/2019 | 01:00 | 752,5 | 20,2 | 80,5 | 0,0 | 0,0 |
| 18/04/2019 | 02:00 | 752,2 | 19,9 | 82,0 | 0,0 | 0,0 |
| 18/04/2019 | 03:00 | 752,1 | 19,6 | 83,0 | 0,2 | 225,0 |
| 18/04/2019 | 04:00 | 752,0 | 19,4 | 83,0 | 0,0 | 0,0 |
| 18/04/2019 | 05:00 | 751,8 | 19,4 | 83,0 | 0,2 | 225,0 |
| 18/04/2019 | 06:00 | 752,2 | 19,2 | 83,0 | 0,4 | 225,0 |
| 18/04/2019 | 07:00 | 752,9 | 19,5 | 83,0 | 0,4 | 202,5 |
| 18/04/2019 | 08:00 | 753,2 | 20,2 | 81,5 | 0,4 | 213,7 |
| 18/04/2019 | 09:00 | 753,5 | 22,4 | 76,5 | 0,6 | 234,1 |
| 18/04/2019 | 10:00 | 753,9 | 24,4 | 70,0 | 1,6 | 238,1 |
| 18/04/2019 | 11:00 | 753,5 | 25,0 | 66,5 | 1,8 | 270,0 |
| 18/04/2019 | 12:00 | 753,1 | 25,2 | 66,0 | 1,3 | 270,0 |
| 18/04/2019 | 13:00 | 752,5 | 25,6 | 65,0 | 1,3 | 258,8 |
| 18/04/2019 | 14:00 | 752,1 | 25,0 | 66,0 | 1,6 | 256,9 |
| 18/04/2019 | 15:00 | 751,7 | 25,1 | 66,0 | 1,3 | 258,8 |
| 18/04/2019 | 16:00 | 751,5 | 25,9 | 66,5 | 1,1 | 247,5 |
| 18/04/2019 | 17:00 | 751,8 | 24,3 | 72,5 | 0,9 | 225,0 |
| 18/04/2019 | 18:00 | 752,0 | 23,0 | 74,5 | 0,6 | 209,4 |
| 18/04/2019 | 19:00 | 752,4 | 21,9 | 76,0 | 0,4 | 202,5 |
| 18/04/2019 | 20:00 | 753,0 | 21,2 | 77,0 | 0,2 | 180,0 |
| 18/04/2019 | 21:00 | 753,2 | 21,0 | 78,5 | 0,4 | 236,2 |
| 18/04/2019 | 22:00 | 753,3 | 20,5 | 79,5 | 0,0 | 0,0 |
| 18/04/2019 | 23:00 | 753,3 | 20,2 | 81,0 | 0,0 | 0,0 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 19/04/2019 | 00:00 | 753,1 | 20,4 | 80,5 | 0,0 | |
| 19/04/2019 | 01:00 | 752,8 | 20,4 | 81,0 | 0,4 | 225,0 |
| 19/04/2019 | 02:00 | 752,7 | 20,1 | 82,5 | 0,6 | 263,1 |
| 19/04/2019 | 03:00 | 752,5 | 19,9 | 83,0 | 0,4 | 270,0 |
| 19/04/2019 | 04:00 | 752,5 | 19,8 | 83,0 | 0,0 | 0,0 |
| 19/04/2019 | 05:00 | 752,3 | 19,6 | 82,0 | 0,2 | 315,0 |
| 19/04/2019 | 06:00 | 752,8 | 19,4 | 83,0 | 0,2 | 225,0 |
| 19/04/2019 | 07:00 | 753,5 | 19,6 | 83,0 | 0,4 | 191,2 |
| 19/04/2019 | 08:00 | 754,0 | 20,9 | 81,0 | 0,6 | 256,6 |
| 19/04/2019 | 09:00 | 754,7 | 22,4 | 76,0 | 1,4 | 247,5 |
| 19/04/2019 | 10:00 | 754,9 | 23,9 | 71,0 | 1,8 | 168,7 |
| 19/04/2019 | 11:00 | 754,8 | 25,5 | 67,0 | 1,8 | 213,7 |
| 19/04/2019 | 12:00 | 754,2 | 26,0 | 65,5 | 2,0 | 249,9 |
| 19/04/2019 | 13:00 | 753,8 | 25,6 | 66,0 | 2,5 | 257,6 |
| 19/04/2019 | 14:00 | 753,3 | 25,9 | 65,0 | 1,8 | 247,5 |
| 19/04/2019 | 15:00 | 753,0 | 26,1 | 64,0 | 1,8 | 270,0 |
| 19/04/2019 | 16:00 | 753,0 | 24,8 | 66,5 | 1,8 | 270,0 |
| 19/04/2019 | 17:00 | 752,9 | 24,0 | 69,0 | 0,9 | 258,8 |
| 19/04/2019 | 18:00 | 753,2 | 22,7 | 73,0 | 0,9 | 247,5 |
| 19/04/2019 | 19:00 | 753,7 | 21,7 | 75,5 | 0,6 | 234,1 |
| 19/04/2019 | 20:00 | 754,0 | 21,4 | 76,5 | 0,4 | 202,5 |
| 19/04/2019 | 21:00 | 754,2 | 21,4 | 76,5 | 0,4 | 180,0 |
| 19/04/2019 | 22:00 | 754,0 | 21,2 | 77,5 | 0,4 | 213,7 |
| 19/04/2019 | 23:00 | 753,9 | 21,1 | 78,5 | 0,4 | 247,5 |
| 20/04/2019 | 00:00 | 754,0 | 20,7 | 79,5 | 0,4 | 258,8 |
| 20/04/2019 | 01:00 | 753,8 | 20,3 | 81,0 | 0,2 | 202,5 |
| 20/04/2019 | 02:00 | 753,5 | 20,1 | 82,0 | 0,4 | 258,8 |
| 20/04/2019 | 03:00 | 753,1 | 20,0 | 82,0 | 0,0 | 0,0 |
| 20/04/2019 | 04:00 | 752,8 | 19,9 | 82,0 | 0,0 | 0,0 |
| 20/04/2019 | 05:00 | 753,0 | 19,8 | 82,5 | 0,4 | 191,2 |
| 20/04/2019 | 06:00 | 753,2 | 19,8 | 84,0 | 0,0 | 0,0 |
| 20/04/2019 | 07:00 | 753,9 | 20,0 | 84,0 | 0,2 | 67,5 |
| 20/04/2019 | 08:00 | 754,5 | 20,8 | 82,5 | 0,6 | 254,4 |
| 20/04/2019 | 09:00 | 754,8 | 23,1 | 76,0 | 0,9 | 225,0 |
| 20/04/2019 | 10:00 | 755,0 | 25,7 | 68,0 | 1,3 | 225,0 |
| 20/04/2019 | 11:00 | 754,8 | 27,3 | 63,5 | 1,3 | 247,5 |
| 20/04/2019 | 12:00 | 754,3 | 27,4 | 62,0 | 1,8 | 258,8 |
| 20/04/2019 | 13:00 | 754,2 | 26,8 | 63,5 | 1,8 | 270,0 |
| 20/04/2019 | 14:00 | 753,8 | 27,5 | 60,0 | 1,8 | 236,2 |
| 20/04/2019 | 15:00 | 753,5 | 27,2 | 61,5 | 1,8 | 258,8 |
| 20/04/2019 | 16:00 | 753,0 | 26,4 | 64,5 | 1,3 | 258,8 |
| 20/04/2019 | 17:00 | 753,2 | 25,4 | 67,0 | 1,1 | 238,3 |
| 20/04/2019 | 18:00 | 753,4 | 24,1 | 70,0 | 0,9 | 213,7 |
| 20/04/2019 | 19:00 | 753,9 | 22,6 | 74,0 | 0,6 | 240,6 |
| 20/04/2019 | 20:00 | 754,2 | 22,2 | 76,0 | 0,0 | 0,0 |
| 20/04/2019 | 21:00 | 754,6 | 22,0 | 77,5 | 0,4 | 225,0 |
| 20/04/2019 | 22:00 | 754,8 | 21,5 | 79,0 | 0,2 | 225,0 |
| 20/04/2019 | 23:00 | 754,5 | 21,3 | 79,5 | 0,0 | 0,0 |
| 21/04/2019 | 00:00 | 754,0 | 21,2 | 80,5 | 0,4 | 247,5 |
| 21/04/2019 | 01:00 | 753,7 | 20,9 | 82,0 | 0,6 | 263,1 |
| 21/04/2019 | 02:00 | 753,5 | 20,8 | 83,0 | 0,4 | 258,8 |
| 21/04/2019 | 03:00 | 753,3 | 20,5 | 83,0 | 0,2 | 247,5 |
| 21/04/2019 | 04:00 | 753,2 | 20,2 | 83,0 | 0,2 | 270,0 |
| 21/04/2019 | 05:00 | 753,2 | 20,1 | 83,0 | 0,2 | 247,5 |
| 21/04/2019 | 06:00 | 753,6 | 19,9 | 83,0 | 0,2 | 247,5 |
| 21/04/2019 | 07:00 | 753,9 | 20,2 | 83,0 | 0,4 | 247,5 |
| 21/04/2019 | 08:00 | 754,6 | 21,1 | 82,0 | 0,9 | 247,5 |
| 21/04/2019 | 09:00 | 755,0 | 23,1 | 76,5 | 0,4 | 236,2 |
| 21/04/2019 | 10:00 | 755,1 | 26,2 | 67,0 | 1,3 | 247,5 |
| 21/04/2019 | 11:00 | 755,0 | 26,5 | 65,5 | 1,8 | 236,2 |
| 21/04/2019 | 12:00 | 754,5 | 27,2 | 67,5 | 2,2 | 247,5 |
| 21/04/2019 | 13:00 | 754,1 | 26,8 | 69,0 | 2,7 | 236,2 |
| 21/04/2019 | 14:00 | 753,8 | 25,9 | 70,0 | 2,2 | 247,5 |
| 21/04/2019 | 15:00 | 753,3 | 26,1 | 70,0 | 1,6 | 256,9 |
| 21/04/2019 | 16:00 | 753,1 | 25,6 | 71,0 | 1,3 | 258,8 |
| 21/04/2019 | 17:00 | 753,2 | 24,9 | 72,5 | 0,9 | 236,2 |

Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 21/04/2019 | 18:00 | 753,4 | 23,4 | 74,5 | 0,6 | 240,6 |
| 21/04/2019 | 19:00 | 753,9 | 22,4 | 76,0 | 0,4 | 213,7 |
| 21/04/2019 | 20:00 | 754,2 | 21,9 | 76,5 | 0,4 | 191,2 |
| 21/04/2019 | 21:00 | 754,5 | 21,5 | 78,5 | 0,4 | 213,7 |
| 21/04/2019 | 22:00 | 754,5 | 21,1 | 79,5 | 0,4 | 258,8 |
| 21/04/2019 | 23:00 | 754,5 | 20,9 | 81,0 | 0,4 | 225,0 |
| 22/04/2019 | 00:00 | 754,2 | 20,6 | 82,0 | 0,4 | 258,8 |
| 22/04/2019 | 01:00 | 753,8 | 20,6 | 82,0 | 0,4 | 225,0 |
| 22/04/2019 | 02:00 | 753,4 | 20,4 | 81,5 | 0,4 | 202,5 |
| 22/04/2019 | 03:00 | 753,1 | 20,1 | 82,0 | 0,4 | 157,5 |
| 22/04/2019 | 04:00 | 753,0 | 20,1 | 83,0 | 0,4 | 180,0 |
| 22/04/2019 | 05:00 | 752,9 | 20,1 | 83,0 | 0,2 | 180,0 |
| 22/04/2019 | 06:00 | 753,1 | 19,9 | 82,5 | 0,6 | 202,5 |
| 22/04/2019 | 07:00 | 753,7 | 20,2 | 83,0 | 0,6 | 202,5 |
| 22/04/2019 | 08:00 | 754,0 | 20,9 | 82,5 | 0,4 | 180,0 |
| 22/04/2019 | 09:00 | 754,3 | 22,4 | 77,5 | 0,6 | 238,4 |
| 22/04/2019 | 10:00 | 754,4 | 25,9 | 67,5 | 1,1 | 226,2 |
| 22/04/2019 | 11:00 | 754,2 | 26,6 | 64,5 | 1,3 | 270,0 |
| 22/04/2019 | 12:00 | 753,8 | 26,6 | 69,5 | 2,0 | 247,5 |
| 22/04/2019 | 13:00 | 753,3 | 26,7 | 68,0 | 2,0 | 257,6 |
| 22/04/2019 | 14:00 | 752,9 | 27,2 | 66,5 | 2,0 | 270,0 |
| 22/04/2019 | 15:00 | 752,4 | 28,1 | 62,5 | 1,6 | 247,5 |
| 22/04/2019 | 16:00 | 752,3 | 27,8 | 63,5 | 1,8 | 247,5 |
| 22/04/2019 | 17:00 | 752,7 | 25,9 | 70,0 | 1,3 | 213,7 |
| 22/04/2019 | 18:00 | 753,3 | 23,9 | 74,0 | 0,9 | 225,0 |
| 22/04/2019 | 19:00 | 753,7 | 23,0 | 75,5 | 0,9 | 225,0 |
| 22/04/2019 | 20:00 | 754,0 | 22,5 | 76,5 | 0,6 | 234,1 |
| 22/04/2019 | 21:00 | 753,9 | 22,2 | 77,0 | 0,2 | 202,5 |
| 22/04/2019 | 22:00 | 754,1 | 21,8 | 77,5 | 0,6 | 202,5 |
| 22/04/2019 | 23:00 | 753,9 | 21,4 | 79,5 | 0,4 | 202,5 |
| 23/04/2019 | 00:00 | 753,6 | 21,1 | 81,0 | 0,2 | 202,5 |
| 23/04/2019 | 01:00 | 753,7 | 20,9 | 82,0 | 0,6 | 254,4 |
| 23/04/2019 | 02:00 | 753,5 | 20,6 | 82,5 | 0,4 | 225,0 |
| 23/04/2019 | 03:00 | 753,3 | 20,6 | 83,0 | 0,4 | 247,5 |
| 23/04/2019 | 04:00 | 753,2 | 20,4 | 83,0 | 0,0 | 0,0 |
| 23/04/2019 | 05:00 | 753,2 | 20,2 | 83,0 | 0,0 | 0,0 |
| 23/04/2019 | 06:00 | 753,5 | 20,1 | 84,0 | 0,4 | 247,5 |
| 23/04/2019 | 07:00 | 754,0 | 20,2 | 85,0 | 0,2 | 112,5 |
| 23/04/2019 | 08:00 | 754,5 | 20,9 | 83,5 | 0,9 | 247,5 |
| 23/04/2019 | 09:00 | 754,5 | 22,8 | 78,5 | 0,6 | 256,6 |
| 23/04/2019 | 10:00 | 754,4 | 25,6 | 69,0 | 1,3 | 225,0 |
| 23/04/2019 | 11:00 | 754,0 | 26,9 | 65,5 | 1,6 | 234,4 |
| 23/04/2019 | 12:00 | 753,7 | 26,7 | 70,0 | 1,8 | 253,6 |
| 23/04/2019 | 13:00 | 753,7 | 26,1 | 71,0 | 1,6 | 260,6 |
| 23/04/2019 | 14:00 | 753,2 | 27,8 | 66,0 | 1,3 | 270,0 |
| 23/04/2019 | 15:00 | 752,8 | 27,6 | 65,0 | 1,8 | 258,8 |
| 23/04/2019 | 16:00 | 753,0 | 26,2 | 69,5 | 1,6 | 260,6 |
| 23/04/2019 | 17:00 | 753,4 | 25,1 | 73,0 | 1,3 | 270,0 |
| 23/04/2019 | 18:00 | 753,6 | 23,4 | 75,0 | 0,9 | 258,8 |
| 23/04/2019 | 19:00 | 753,9 | 22,5 | 76,5 | 0,9 | 270,0 |
| 23/04/2019 | 20:00 | 754,2 | 21,9 | 77,5 | 0,6 | 285,6 |
| 23/04/2019 | 21:00 | 754,7 | 21,6 | 78,0 | 0,4 | 292,5 |
| 23/04/2019 | 22:00 | 754,7 | 21,6 | 78,0 | 0,2 | 315,0 |
| 23/04/2019 | 23:00 | 754,5 | 21,7 | 78,0 | 0,4 | 247,5 |
| 24/04/2019 | 00:00 | 754,0 | 21,8 | 78,0 | 0,2 | 135,0 |
| 24/04/2019 | 01:00 | 753,4 | 21,6 | 79,0 | 0,2 | 180,0 |
| 24/04/2019 | 02:00 | 752,9 | 21,3 | 80,5 | 0,4 | 202,5 |
| 24/04/2019 | 03:00 | 753,0 | 21,1 | 82,5 | 0,2 | 292,5 |
| 24/04/2019 | 04:00 | 753,0 | 20,9 | 83,0 | 0,2 | 270,0 |
| 24/04/2019 | 05:00 | 753,0 | 20,8 | 83,0 | 0,2 | 225,0 |
| 24/04/2019 | 06:00 | 753,3 | 20,7 | 83,0 | 0,4 | 247,5 |
| 24/04/2019 | 07:00 | 753,6 | 21,0 | 83,0 | 0,0 | 0,0 |
| 24/04/2019 | 08:00 | 753,7 | 22,2 | 80,5 | 0,4 | 247,5 |
| 24/04/2019 | 09:00 | 754,1 | 23,7 | 75,0 | 1,3 | 270,0 |
| 24/04/2019 | 10:00 | 754,0 | 26,1 | 67,5 | 1,6 | 256,9 |
| 24/04/2019 | 11:00 | 753,7 | 26,9 | 67,0 | 2,0 | 270,0 |

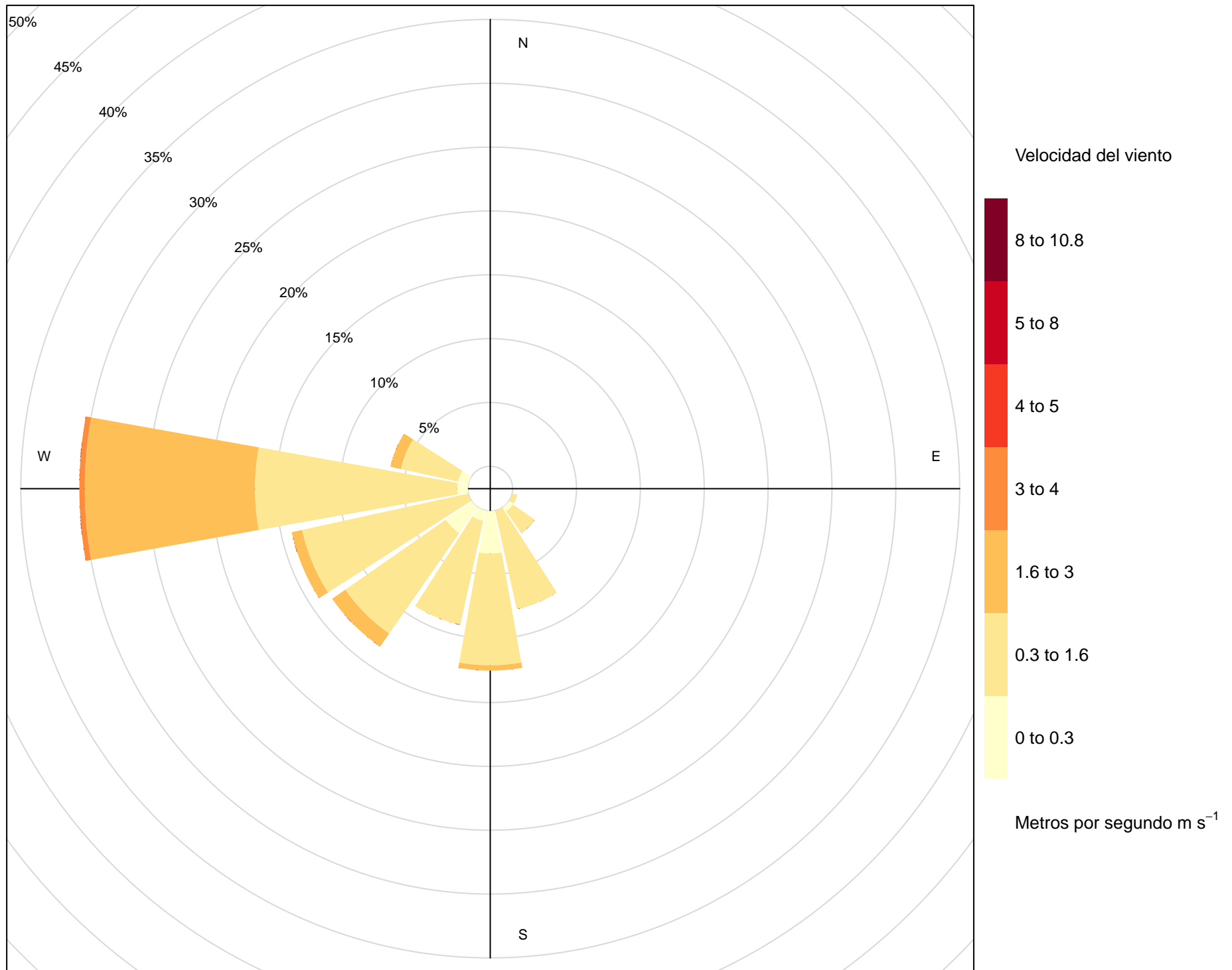
Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 24/04/2019 | 12:00 | 753,5 | 26,7 | 70,0 | 2,2 | 270,0 |
| 24/04/2019 | 13:00 | 753,2 | 26,0 | 70,0 | 2,2 | 258,8 |
| 24/04/2019 | 14:00 | 752,5 | 25,6 | 71,5 | 2,0 | 270,0 |
| 24/04/2019 | 15:00 | 752,0 | 24,6 | 74,0 | 1,8 | 270,0 |
| 24/04/2019 | 16:00 | 751,8 | 23,8 | 74,5 | 1,3 | 270,0 |
| 24/04/2019 | 17:00 | 752,2 | 22,6 | 76,0 | 1,1 | 283,3 |
| 24/04/2019 | 18:00 | 752,6 | 21,9 | 77,5 | 1,1 | 279,2 |
| 24/04/2019 | 19:00 | 752,8 | 22,0 | 77,5 | 0,6 | 276,9 |
| 24/04/2019 | 20:00 | 753,3 | 22,3 | 76,0 | 0,4 | 202,5 |
| 24/04/2019 | 21:00 | 753,7 | 22,0 | 77,5 | 0,4 | 213,7 |
| 24/04/2019 | 22:00 | 753,8 | 21,8 | 78,5 | 0,6 | 260,9 |
| 24/04/2019 | 23:00 | 753,8 | 21,8 | 79,0 | 0,2 | 202,5 |
| 25/04/2019 | 00:00 | 753,4 | 21,6 | 79,5 | 0,0 | 0,0 |
| 25/04/2019 | 01:00 | 752,9 | 21,3 | 79,5 | 0,4 | 191,2 |
| 25/04/2019 | 02:00 | 752,2 | 21,0 | 80,0 | 0,2 | 180,0 |
| 25/04/2019 | 03:00 | 752,1 | 20,9 | 81,0 | 0,4 | 191,2 |
| 25/04/2019 | 04:00 | 752,0 | 20,8 | 81,0 | 0,2 | 225,0 |
| 25/04/2019 | 05:00 | 752,5 | 20,8 | 81,0 | 0,4 | 191,2 |
| 25/04/2019 | 06:00 | 753,1 | 20,7 | 81,5 | 0,4 | 213,7 |
| 25/04/2019 | 07:00 | 753,6 | 21,0 | 82,0 | 0,9 | 247,5 |
| 25/04/2019 | 08:00 | 754,2 | 21,4 | 81,0 | 0,9 | 247,5 |
| 25/04/2019 | 09:00 | 754,3 | 22,0 | 78,5 | 1,3 | 270,0 |
| 25/04/2019 | 10:00 | 754,3 | 24,2 | 72,0 | 1,3 | 270,0 |
| 25/04/2019 | 11:00 | 754,1 | 25,0 | 70,0 | 2,0 | 270,0 |
| 25/04/2019 | 12:00 | 753,6 | 25,5 | 68,5 | 1,3 | 247,5 |
| 25/04/2019 | 13:00 | 753,5 | 26,7 | 65,0 | 1,6 | 238,1 |
| 25/04/2019 | 14:00 | 752,8 | 27,1 | 64,0 | 1,8 | 258,8 |
| 25/04/2019 | 15:00 | 752,4 | 26,5 | 70,0 | 2,0 | 270,0 |
| 25/04/2019 | 16:00 | 752,3 | 25,7 | 71,0 | 1,8 | 270,0 |
| 25/04/2019 | 17:00 | 752,4 | 23,4 | 75,0 | 1,1 | 270,0 |
| 25/04/2019 | 18:00 | 752,9 | 23,6 | 75,0 | 0,6 | 228,2 |
| 25/04/2019 | 19:00 | 753,3 | 22,6 | 76,5 | 0,6 | 209,4 |
| 25/04/2019 | 20:00 | 753,7 | 22,5 | 77,0 | 0,4 | 202,5 |
| 25/04/2019 | 21:00 | 754,0 | 22,1 | 78,0 | 0,6 | 173,1 |
| 25/04/2019 | 22:00 | 754,0 | 21,9 | 78,5 | 0,4 | 225,0 |
| 25/04/2019 | 23:00 | 754,0 | 21,4 | 79,5 | 0,4 | 225,0 |
| 26/04/2019 | 00:00 | 753,8 | 21,0 | 80,5 | 0,4 | 202,5 |
| 26/04/2019 | 01:00 | 753,2 | 20,5 | 80,5 | 0,6 | 292,5 |
| 26/04/2019 | 02:00 | 753,0 | 20,4 | 80,5 | 0,4 | 281,2 |
| 26/04/2019 | 03:00 | 753,0 | 20,4 | 80,5 | 0,4 | 270,0 |
| 26/04/2019 | 04:00 | 753,0 | 20,4 | 81,0 | 0,4 | 236,2 |
| 26/04/2019 | 05:00 | 753,2 | 20,3 | 81,0 | 0,4 | 247,5 |
| 26/04/2019 | 06:00 | 753,5 | 20,2 | 81,0 | 0,4 | 247,5 |
| 26/04/2019 | 07:00 | 753,9 | 20,2 | 81,0 | 0,2 | 270,0 |
| 26/04/2019 | 08:00 | 754,2 | 20,9 | 80,5 | 0,4 | 191,2 |
| 26/04/2019 | 09:00 | 754,5 | 22,5 | 76,0 | 0,8 | 230,2 |
| 26/04/2019 | 10:00 | 754,5 | 24,1 | 71,5 | 1,3 | 236,2 |
| 26/04/2019 | 11:00 | 754,1 | 25,5 | 67,0 | 1,3 | 258,8 |
| 26/04/2019 | 12:00 | 753,2 | 26,1 | 68,5 | 1,6 | 238,1 |
| 26/04/2019 | 13:00 | 752,8 | 25,4 | 72,0 | 1,6 | 225,0 |
| 26/04/2019 | 14:00 | 752,4 | 25,4 | 71,5 | 1,8 | 258,8 |
| 26/04/2019 | 15:00 | 752,0 | 24,9 | 72,5 | 1,6 | 270,0 |
| 26/04/2019 | 16:00 | 751,7 | 24,6 | 74,0 | 1,3 | 270,0 |
| 26/04/2019 | 17:00 | 751,7 | 23,7 | 74,5 | 1,3 | 258,8 |
| 26/04/2019 | 18:00 | 751,9 | 21,6 | 77,0 | 1,6 | 270,0 |
| 26/04/2019 | 19:00 | 752,4 | 21,6 | 77,0 | 0,9 | 292,5 |
| 26/04/2019 | 20:00 | 752,8 | 21,7 | 76,5 | 0,4 | 292,5 |
| 26/04/2019 | 21:00 | 753,2 | 21,7 | 76,0 | 0,6 | 292,5 |
| 26/04/2019 | 22:00 | 753,1 | 21,6 | 76,0 | 0,0 | 0,0 |
| 26/04/2019 | 23:00 | 753,0 | 21,0 | 77,0 | 0,4 | 157,5 |
| 27/04/2019 | 00:00 | 752,8 | 20,4 | 79,0 | 0,9 | 270,0 |
| 27/04/2019 | 01:00 | 752,4 | 20,2 | 79,0 | 0,9 | 270,0 |
| 27/04/2019 | 02:00 | 752,1 | 20,0 | 79,5 | 0,6 | 285,6 |
| 27/04/2019 | 03:00 | 751,9 | 19,9 | 80,0 | 0,6 | 260,9 |
| 27/04/2019 | 04:00 | 752,0 | 19,8 | 80,0 | 0,6 | 202,5 |
| 27/04/2019 | 05:00 | 752,0 | 19,6 | 81,0 | 0,4 | 281,2 |

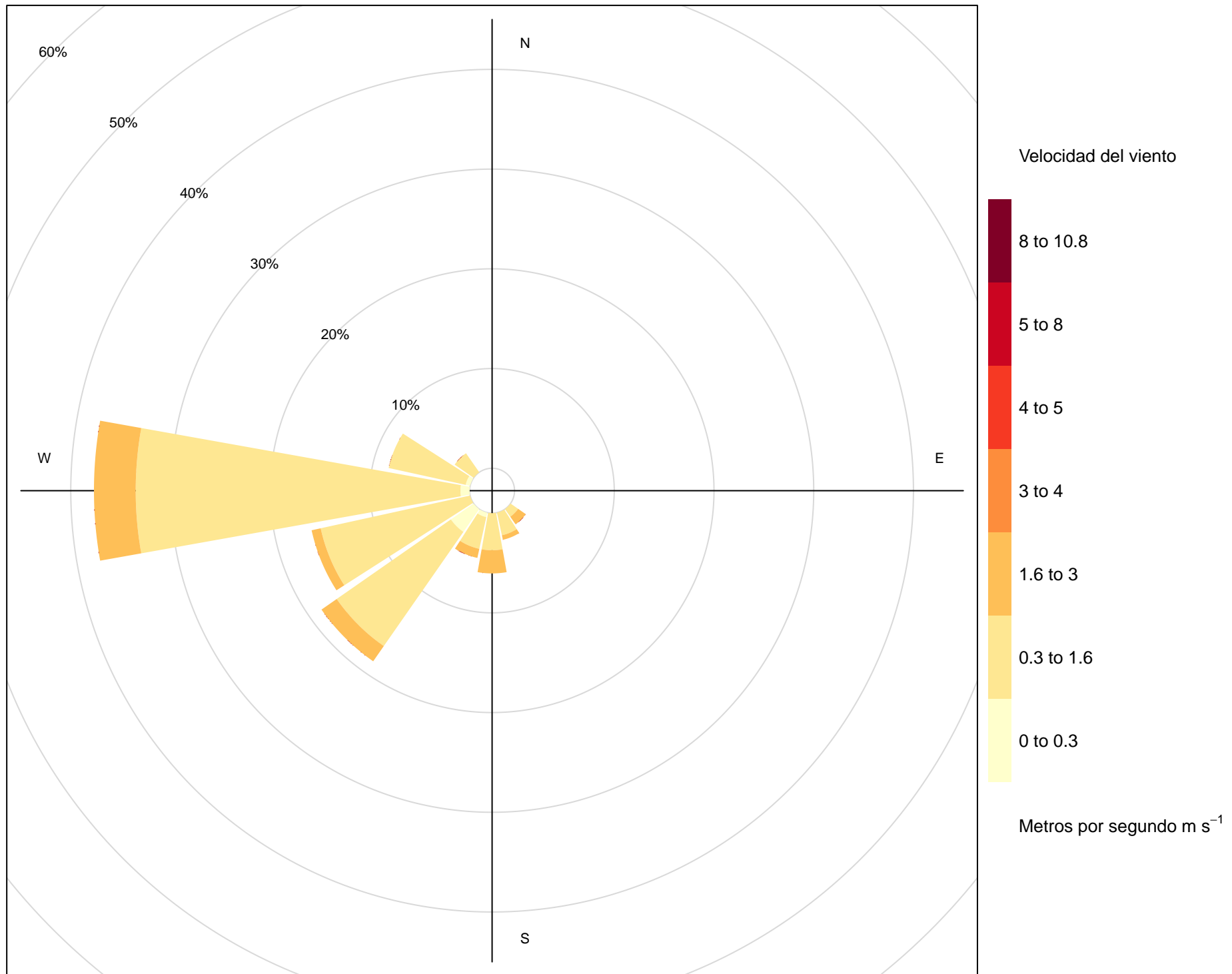
Registro horario de las variables meteorológicas de la Estación CA-VMP-7

| Fecha | Hora | PBAR | TEMP | HR | ws | wd |
|------------|-------|-------|------|------|-----|-------|
| 27/04/2019 | 06:00 | 752,2 | 19,6 | 80,5 | 0,4 | 225,0 |
| 27/04/2019 | 07:00 | 752,5 | 19,8 | 80,5 | 0,4 | 247,5 |
| 27/04/2019 | 08:00 | 753,0 | 19,9 | 81,0 | 0,6 | 247,5 |
| 27/04/2019 | 09:00 | 753,5 | 20,2 | 80,5 | 0,9 | 270,0 |
| 27/04/2019 | 10:00 | 753,2 | 20,6 | 79,5 | 0,9 | 270,0 |
| 27/04/2019 | 11:00 | 753,0 | 21,5 | 76,5 | 1,3 | 270,0 |
| 27/04/2019 | 12:00 | 752,5 | 22,4 | 74,0 | 1,3 | 270,0 |
| 27/04/2019 | 13:00 | 752,3 | 24,1 | 69,5 | 1,6 | 270,0 |
| 27/04/2019 | 14:00 | 751,5 | 24,0 | 68,5 | 1,6 | 270,0 |
| 27/04/2019 | 15:00 | 751,2 | 23,9 | 69,0 | 1,6 | 270,0 |
| 27/04/2019 | 16:00 | 751,0 | 22,6 | 71,5 | 1,3 | 258,8 |
| 27/04/2019 | 17:00 | 751,0 | 21,0 | 75,0 | 1,1 | 238,3 |
| 27/04/2019 | 18:00 | 751,2 | 20,0 | 78,0 | 0,6 | 250,7 |
| 27/04/2019 | 19:00 | 751,7 | 19,7 | 79,5 | 0,9 | 236,2 |
| 27/04/2019 | 20:00 | 752,4 | 19,4 | 80,5 | 0,4 | 225,0 |
| 27/04/2019 | 21:00 | 752,5 | 19,1 | 81,5 | 0,6 | 209,4 |
| 27/04/2019 | 22:00 | 752,6 | 19,1 | 82,0 | 0,4 | 213,7 |
| 27/04/2019 | 23:00 | 752,3 | 19,1 | 82,0 | 0,4 | 213,7 |
| 28/04/2019 | 00:00 | 752,2 | 18,9 | 83,0 | 0,4 | 225,0 |
| 28/04/2019 | 01:00 | 751,5 | 18,7 | 84,0 | 0,4 | 213,7 |
| 28/04/2019 | 02:00 | 751,2 | 18,6 | 85,0 | 0,2 | 135,0 |
| 28/04/2019 | 03:00 | 751,2 | 18,4 | 85,0 | 0,2 | 135,0 |
| 28/04/2019 | 04:00 | 751,2 | 18,3 | 85,0 | 0,4 | 247,5 |
| 28/04/2019 | 05:00 | 751,7 | 18,2 | 85,0 | 0,4 | 303,8 |
| 28/04/2019 | 06:00 | 751,9 | 18,2 | 85,5 | 0,4 | 292,5 |
| 28/04/2019 | 07:00 | 752,2 | 18,4 | 86,0 | 0,4 | 315,0 |
| 28/04/2019 | 08:00 | 752,8 | 18,8 | 85,0 | 0,4 | 315,0 |
| 28/04/2019 | 09:00 | 753,0 | 19,6 | 83,0 | 0,4 | 236,2 |
| 28/04/2019 | 10:00 | 752,8 | 22,1 | 76,0 | 0,8 | 234,3 |
| 28/04/2019 | 11:00 | 752,5 | 24,4 | 68,0 | 2,0 | 235,1 |
| 28/04/2019 | 12:00 | 752,0 | 23,5 | 71,0 | 2,5 | 167,6 |
| 28/04/2019 | 13:00 | 751,8 | 23,5 | 69,0 | 1,8 | 236,2 |
| 28/04/2019 | 14:00 | 751,4 | 23,0 | 71,0 | 1,3 | 247,5 |
| 28/04/2019 | 15:00 | 750,8 | 23,4 | 70,0 | 1,3 | 247,5 |
| 28/04/2019 | 16:00 | 751,0 | 22,1 | 72,5 | 1,1 | 251,8 |
| 28/04/2019 | 17:00 | 751,3 | 21,0 | 75,0 | 1,1 | 247,5 |
| 28/04/2019 | 18:00 | 751,8 | 20,1 | 78,0 | 0,4 | 213,7 |
| 28/04/2019 | 19:00 | 752,2 | 19,6 | 79,5 | 0,4 | 247,5 |
| 28/04/2019 | 20:00 | 752,7 | 19,5 | 80,5 | 0,4 | 180,0 |
| 28/04/2019 | 21:00 | 753,0 | 19,2 | 81,5 | 0,6 | 215,9 |
| 28/04/2019 | 22:00 | 753,0 | 19,2 | 82,0 | 0,4 | 213,7 |
| 28/04/2019 | 23:00 | 753,0 | 19,2 | 82,0 | 0,4 | 191,2 |
| 29/04/2019 | 00:00 | 753,0 | 19,1 | 82,0 | 0,4 | 213,7 |
| 29/04/2019 | 01:00 | 752,6 | 18,9 | 83,0 | 0,6 | 330,6 |
| 29/04/2019 | 02:00 | 752,6 | 18,9 | 83,0 | 0,6 | 292,5 |
| 29/04/2019 | 03:00 | 752,4 | 18,7 | 84,0 | 0,6 | 358,5 |
| 29/04/2019 | 04:00 | 752,2 | 18,7 | 84,0 | 0,4 | 281,2 |
| 29/04/2019 | 05:00 | 752,4 | 18,7 | 84,5 | 0,9 | 315,0 |
| 29/04/2019 | 06:00 | 752,8 | 18,9 | 84,0 | 0,2 | 22,5 |
| 29/04/2019 | 07:00 | 753,3 | 18,9 | 84,5 | 0,9 | 292,5 |
| 29/04/2019 | 08:00 | 753,8 | 19,3 | 83,5 | 1,1 | 279,2 |
| 29/04/2019 | 09:00 | 753,8 | 20,2 | 81,0 | 0,6 | 283,4 |
| 29/04/2019 | 10:00 | 754,0 | 22,5 | 74,0 | 0,8 | 197,3 |
| 29/04/2019 | 11:00 | 753,7 | 24,4 | 68,5 | 1,3 | 213,7 |
| 29/04/2019 | 12:00 | 753,5 | 25,4 | 66,0 | 1,6 | 242,4 |
| 29/04/2019 | 13:00 | 752,5 | 26,3 | 63,5 | 1,3 | 247,5 |
| 29/04/2019 | 14:00 | 752,1 | 25,8 | 64,0 | 1,8 | 247,5 |

a) Punto CA-VMP-1



b) Punto CA-VMP-6



ANEXO N° 3.4



Organismo
de Evaluación
y Fiscalización
Ambiental

Resultados de laboratorio

Tabla A.3.1. Material particulado en el punto CA-VMP-1 comparados con los ECA aire del Decreto Supremo N° 003-2017-MINAM

| Parámetros | Unidad | Laboratorio | Método de referencia | ECA para Aire ($\mu\text{g}/\text{m}^3$) | CA-VMP-1 | | | | | |
|-------------------|--------------------------|---------------|--|--|-----------|------------|------------|------------|------------|------------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| PM ₁₀ | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA/625/R-96/010a - Compendium Method IO-3.1; Item 4 y 5 (excepto 5.1.1; 5.2.3.7 y 5.3), june 1999- (validado) | 100 | 108,76 | 93,42 | 86,59 | 74,36 | 78,53 | 81,16 |
| PM _{2,5} | $\mu\text{g}/\text{m}^3$ | | | 50 | 44,76 | 34,11 | 35,88 | 33,11 | 38,59 | 10,56 |

Nota: Concentración calculada a T=25 °C ó 298,15 °K

Excede los ECA para aire

Tabla A.3.2. Material particulado en el punto CA-VMP-2 comparados con los ECA aire del Decreto Supremo N° 003-2017-MINAM

| Parámetros | Unidad | Laboratorio | Método de referencia | ECA para Aire ($\mu\text{g}/\text{m}^3$) | CA-VMP-2 | | | | | |
|-------------------|--------------------------|---------------|--|--|-----------|------------|------------|------------|------------|------------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| PM ₁₀ | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA/625/R-96/010a - Compendium Method IO-3.1; Item 4 y 5 (excepto 5.1.1; 5.2.3.7 y 5.3), june 1999- (validado) | 100 | 122,73 | 100,97 | 94,60 | 82,42 | 85,19 | 90,81 |
| PM _{2,5} | $\mu\text{g}/\text{m}^3$ | | | 50 | 46,32 | 31,54 | 33,46 | 33,75 | 37,00 | 36,20 |

Nota: Concentración calculada a T=25 °C ó 298,15 °K

En la estación CA-VMP-2 para el material particulado PM₁₀ sólo muestreó 5 horas el 26 de abril, debido al corte de energía eléctrica .

Excede los ECA para aire

Tabla A.3.3. Material particulado en el punto CA-VMP-6 comparados con los ECA aire del Decreto Supremo N° 003-2017-MINAM

| Parámetros | Unidad | Laboratorio | Método de referencia | ECA para Aire ($\mu\text{g}/\text{m}^3$) | CA-VMP-6 | | | | | |
|------------------|--------------------------|---------------|--|--|-----------|------------|------------|------------|------------|------------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| PM ₁₀ | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA/625/R-96/010a - Compendium Method IO-3.1; Item 4 y 5 (excepto 5.1.1; 5.2.3.7 y 5.3), june 1999- (validado) | 100 | 93,87 | 84,89 | 74,17 | 69,66 | 62,93 | 73,86 |

Nota: Concentración calculada a T=25 °C ó 298,15 °K

Excede los ECA para aire

Tabla A.3.4. Material particulado en el punto CA-VMP-7 comparados con los ECA aire del Decreto Supremo N° 003-2017-MINAM

| Parámetros | Unidad | Laboratorio | Método de referencia | ECA para Aire ($\mu\text{g}/\text{m}^3$) | CA-VMP-7 | | | | | |
|------------------|--------------------------|---------------|--|--|-----------|------------|------------|------------|------------|------------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| PM ₁₀ | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA/625/R-96/010a - Compendium Method IO-3.1; Item 4 y 5 (excepto 5.1.1; 5.2.3.7 y 5.3), june 1999- (validado) | 100 | 123,34 | 97,77 | 86,59 | 73,35 | 62,30 | 80,24 |

Nota: Concentración calculada a T=25 °C ó 298,15 °K

Excede los ECA para aire

Tabla A.4.1. Concentraciones de metales en el material particulado del punto CA-VMP-1 comparados referencialmente con los valores de la *Ontario's Ambient Air Quality Criteria*

| Parámetros | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-1 | | | | | | |
|-------------------------------------|--------|--------------------------|----------------------|---|-----------|------------|------------|------------|------------|------------|-------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Metales medidos en PM_{10} | | | | | | | | | | | |
| Plata | Ag | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA IO-3.5, June 1999 | 1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | $\mu\text{g}/\text{m}^3$ | | | - | 0,62 | 0,79 | 0,72 | 0,58 | 0,50 | 0,56 |
| Arsénico | As | $\mu\text{g}/\text{m}^3$ | | | 0,3 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | $\mu\text{g}/\text{m}^3$ | | | | 0,014 | 0,018 | 0,016 | 0,015 | 0,014 | 0,014 |
| Berilio | Be | $\mu\text{g}/\text{m}^3$ | | | 0,01 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | $\mu\text{g}/\text{m}^3$ | | | | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,148 | 0,034 | 0,036 | 0,018 | 0,007 | 0,023 |
| Calcio | Ca | $\mu\text{g}/\text{m}^3$ | | | - | 2,66 | 2,69 | 2,35 | 2,35 | 2,14 | 2,10 |
| Cadmio | Cd | $\mu\text{g}/\text{m}^3$ | | | 0,025 | 0,003 | 0,004 | 0,002 | 0,005 | 0,004 | 0,007 |
| Cobalto | Co | $\mu\text{g}/\text{m}^3$ | | | 0,1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | $\mu\text{g}/\text{m}^3$ | | | 0,5 | 0,020 | 0,026 | 0,024 | 0,020 | 0,033 | 0,039 |
| Cobre | Cu | $\mu\text{g}/\text{m}^3$ | | | 50 | 0,160 | 0,198 | 0,175 | 0,236 | 0,150 | 0,173 |
| Hierro | Fe | $\mu\text{g}/\text{m}^3$ | | | 4 | 1,39 | 1,51 | 1,29 | 1,13 | 1,08 | 1,23 |
| Potasio | K | $\mu\text{g}/\text{m}^3$ | | | - | 0,496 | 0,520 | 0,522 | 0,366 | 0,407 | 0,412 |
| Mercurio | Hg | $\mu\text{g}/\text{m}^3$ | | | 2 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | $\mu\text{g}/\text{m}^3$ | | | 20 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | $\mu\text{g}/\text{m}^3$ | | | - | 1,08 | 1,07 | 1,13 | 0,73 | 0,78 | 0,84 |
| Manganeso | Mn | $\mu\text{g}/\text{m}^3$ | | | 0,2 | 0,029 | 0,034 | 0,027 | 0,026 | 0,025 | 0,025 |
| Molibdeno | Mo | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,004 | 0,081 | 0,004 | 0,012 | 0,018 | 0,012 |
| Sodio | Na | $\mu\text{g}/\text{m}^3$ | | | - | 6,06 | 5,45 | 6,39 | 3,37 | 3,99 | 4,32 |
| Níquel | Ni | $\mu\text{g}/\text{m}^3$ | | | 0,1 | 0,010 | 0,012 | 0,014 | N.D. | 0,015 | 0,010 |
| Fosforo | P | $\mu\text{g}/\text{m}^3$ | | | - | 0,252 | 0,204 | 0,160 | 0,187 | 0,185 | 0,134 |
| Plomo | Pb | $\mu\text{g}/\text{m}^3$ | | | 0,5 | 0,259 | 0,369 | 0,318 | 0,831 | 0,646 | 0,764 |
| Antimonio | Sb | $\mu\text{g}/\text{m}^3$ | | | 25 | N.D. | N.D. | N.D. | N.D. | N.D. | 0,018 |
| Selenio | Se | $\mu\text{g}/\text{m}^3$ | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | | |
| Silicio | Si | $\mu\text{g}/\text{m}^3$ | - | 0,60 | 1,64 | 1,54 | 1,23 | 0,99 | 1,32 | | |
| Estaño | Sn | $\mu\text{g}/\text{m}^3$ | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | | |
| Estroncio | Sr | $\mu\text{g}/\text{m}^3$ | 120 | 0,012 | 0,013 | 0,012 | 0,010 | 0,010 | 0,011 | | |
| Titanio | Ti | $\mu\text{g}/\text{m}^3$ | 120 | 0,032 | 0,037 | 0,032 | 0,024 | 0,020 | 0,026 | | |

| Parámetros | | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-1 | | | | | |
|------------|----|--------------------------|-------------|----------------------|---|-----------|------------|------------|------------|------------|------------|
| | | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Talio | Tl | $\mu\text{g}/\text{m}^3$ | | | - | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | $\mu\text{g}/\text{m}^3$ | | | 2 | 0,020 | 0,026 | 0,039 | 0,039 | 0,029 | 0,022 |
| Zinc | Zn | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,252 | 0,248 | 0,160 | 0,213 | 0,257 | 0,188 |

Nota: Concentración de metales calculados a $T=10\text{ }^\circ\text{C}$ ó $283,15\text{ }^\circ\text{K}$

Excede la Norma Canadiense Ontario's Ambient Air Quality Criteria

N.D.: No detectable

-: No presenta valor de comparación

Tabla A.4.2. Concentraciones de metales en el material particulado del punto CA-VMP-2 comparados referencialmente con los *Ontario's Ambient Air Quality Criteria*

| Parámetros | | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-2 | | | | | |
|-------------------------------------|----|--------------------------|---------------|-----------------------|---|-----------|------------|------------|------------|------------|------------|
| | | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Metales medidos en PM_{10} | | | | | | | | | | | |
| Plata | Ag | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA IO-3.5, June 1999 | 1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | $\mu\text{g}/\text{m}^3$ | | | - | 0,84 | 1,02 | 0,74 | 0,74 | 0,78 | 1,03 |
| Arsénico | As | $\mu\text{g}/\text{m}^3$ | | | 0,3 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | $\mu\text{g}/\text{m}^3$ | | | | 0,022 | 0,024 | 0,017 | 0,019 | 0,019 | 0,021 |
| Berilio | Be | $\mu\text{g}/\text{m}^3$ | | | 0,01 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | $\mu\text{g}/\text{m}^3$ | | | | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | $\mu\text{g}/\text{m}^3$ | | | 120 | N.D. | 0,217 | 0,078 | N.D. | 0,126 | 0,069 |
| Calcio | Ca | $\mu\text{g}/\text{m}^3$ | | | - | 3,51 | 3,52 | 2,54 | 2,39 | 2,42 | 3,44 |
| Cadmio | Cd | $\mu\text{g}/\text{m}^3$ | | | 0,025 | 0,007 | 0,014 | 0,012 | 0,008 | 0,025 | 0,018 |
| Cobalto | Co | $\mu\text{g}/\text{m}^3$ | | | 0,1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | $\mu\text{g}/\text{m}^3$ | | | 0,5 | 0,030 | 0,030 | 0,023 | 0,022 | 0,019 | 0,084 |
| Cobre | Cu | $\mu\text{g}/\text{m}^3$ | | | 50 | 0,186 | 0,240 | 0,186 | 0,134 | 0,173 | 0,209 |
| Hierro | Fe | $\mu\text{g}/\text{m}^3$ | | | 4 | 1,77 | 1,90 | 1,33 | 1,42 | 1,42 | 2,05 |
| Potasio | K | $\mu\text{g}/\text{m}^3$ | | | - | 0,539 | 0,570 | 0,516 | 0,369 | 0,395 | 0,529 |
| Mercurio | Hg | $\mu\text{g}/\text{m}^3$ | | | 2 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | $\mu\text{g}/\text{m}^3$ | | | 20 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | $\mu\text{g}/\text{m}^3$ | - | 1,28 | 1,26 | 1,10 | 0,80 | 0,91 | 0,94 | | |

| Parámetros | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-2 | | | | | |
|------------|--------|--------------------------|----------------------|---|-----------|------------|------------|------------|------------|------------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Manganeso | Mn | $\mu\text{g}/\text{m}^3$ | | 0,2 | 0,039 | 0,042 | 0,028 | 0,029 | 0,030 | 0,039 |
| Molibdeno | Mo | $\mu\text{g}/\text{m}^3$ | | 120 | 0,003 | N.D. | N.D. | N.D. | N.D. | N.D. |
| Sodio | Na | $\mu\text{g}/\text{m}^3$ | | - | 6,29 | 5,72 | 5,70 | 3,13 | 3,92 | 3,16 |
| Níquel | Ni | $\mu\text{g}/\text{m}^3$ | | 0,1 | N.D. | 0,012 | 0,013 | N.D. | 0,011 | N.D. |
| Fosforo | P | $\mu\text{g}/\text{m}^3$ | | - | 0,275 | 0,198 | 0,106 | 0,107 | 0,111 | N.D. |
| Plomo | Pb | $\mu\text{g}/\text{m}^3$ | | 0,5 | 0,184 | 0,226 | 0,201 | 0,130 | 0,110 | 0,804 |
| Antimonio | Sb | $\mu\text{g}/\text{m}^3$ | | 25 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | $\mu\text{g}/\text{m}^3$ | | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | $\mu\text{g}/\text{m}^3$ | | - | 1,55 | 1,94 | 1,59 | 0,36 | 1,58 | 3,63 |
| Estaño | Sn | $\mu\text{g}/\text{m}^3$ | | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | $\mu\text{g}/\text{m}^3$ | | 120 | 0,016 | 0,017 | 0,013 | 0,011 | 0,013 | 0,018 |
| Titanio | Ti | $\mu\text{g}/\text{m}^3$ | | 120 | 0,037 | 0,045 | 0,035 | 0,035 | 0,039 | 0,051 |
| Talio | Tl | $\mu\text{g}/\text{m}^3$ | | - | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | $\mu\text{g}/\text{m}^3$ | | 2 | 0,019 | 0,025 | 0,033 | 0,033 | 0,024 | 0,009 |
| Zinc | Zn | $\mu\text{g}/\text{m}^3$ | | 120 | 0,255 | 0,243 | 0,150 | 0,139 | 0,299 | 0,170 |

Nota: Concentración de metales calculados a $T=10\text{ }^\circ\text{C}$ ó $283,15\text{ }^\circ\text{K}$

Excede la Norma Canadiense Ontario's Ambient Air Quality Criteria

N.D.: No detectable

:- No presenta valor de comparación

Tabla A.4.3. Concentraciones de metales en el material particulado del punto CA-VMP-6 comparados referencialmente con los *Ontario's Ambient Air Quality Criteria*

| Parámetros | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-6 | | | | | | |
|-------------------------------------|--------|--------------------------|----------------------|---|-----------|------------|------------|------------|------------|------------|-------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Metales medidos en PM_{10} | | | | | | | | | | | |
| Plata | Ag | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA IO-3.5, June 1999 | 1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | $\mu\text{g}/\text{m}^3$ | | | - | 0,52 | 0,65 | 0,39 | 0,51 | 0,38 | 0,44 |
| Arsénico | As | $\mu\text{g}/\text{m}^3$ | | | 0,3 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | $\mu\text{g}/\text{m}^3$ | | | | 0,016 | 0,017 | 0,012 | 0,018 | 0,013 | 0,015 |
| Berilio | Be | $\mu\text{g}/\text{m}^3$ | | | 0,01 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |

| Parámetros | | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-6 | | | | | |
|------------|----|--------------------------|-------------|----------------------|---|-----------|------------|------------|------------|------------|------------|
| | | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Bismuto | Bi | $\mu\text{g}/\text{m}^3$ | | | | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | $\mu\text{g}/\text{m}^3$ | | | 120 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Calcio | Ca | $\mu\text{g}/\text{m}^3$ | | | - | 2,45 | 2,22 | 1,82 | 2,22 | 1,70 | 1,91 |
| Cadmio | Cd | $\mu\text{g}/\text{m}^3$ | | | 0,025 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cobalto | Co | $\mu\text{g}/\text{m}^3$ | | | 0,1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | $\mu\text{g}/\text{m}^3$ | | | 0,5 | 0,035 | 0,020 | 0,044 | 0,018 | 0,034 | 0,036 |
| Cobre | Cu | $\mu\text{g}/\text{m}^3$ | | | 50 | 0,053 | 0,080 | 0,045 | 0,099 | 0,052 | 0,039 |
| Hierro | Fe | $\mu\text{g}/\text{m}^3$ | | | 4 | 1,14 | 1,17 | 0,93 | 1,03 | 0,86 | 0,98 |
| Potasio | K | $\mu\text{g}/\text{m}^3$ | | | - | 0,508 | 0,485 | 0,472 | 0,360 | 0,321 | 0,380 |
| Mercurio | Hg | $\mu\text{g}/\text{m}^3$ | | | 2 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | $\mu\text{g}/\text{m}^3$ | | | 20 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | $\mu\text{g}/\text{m}^3$ | | | - | 1,22 | 1,03 | 1,12 | 0,75 | 0,70 | 0,80 |
| Manganeso | Mn | $\mu\text{g}/\text{m}^3$ | | | 0,2 | 0,025 | 0,026 | 0,016 | 0,025 | 0,017 | 0,020 |
| Molibdeno | Mo | $\mu\text{g}/\text{m}^3$ | | | 120 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Sodio | Na | $\mu\text{g}/\text{m}^3$ | | | - | 7,42 | 6,02 | 7,41 | 3,76 | 4,05 | 4,49 |
| Níquel | Ni | $\mu\text{g}/\text{m}^3$ | | | 0,1 | 0,008 | N.D. | 0,014 | N.D. | 0,014 | 0,008 |
| Fosforo | P | $\mu\text{g}/\text{m}^3$ | | | - | 0,164 | 0,129 | 0,067 | 0,145 | 0,073 | 0,075 |
| Plomo | Pb | $\mu\text{g}/\text{m}^3$ | | | 0,5 | 0,118 | 0,124 | 0,053 | 0,071 | 0,049 | 0,096 |
| Antimonio | Sb | $\mu\text{g}/\text{m}^3$ | | | 25 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | $\mu\text{g}/\text{m}^3$ | | | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | $\mu\text{g}/\text{m}^3$ | | | - | 1,14 | 1,28 | 0,96 | 1,21 | 1,00 | 1,09 |
| Estaño | Sn | $\mu\text{g}/\text{m}^3$ | | | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Estroncio | Sr | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,013 | 0,012 | 0,012 | 0,014 | 0,009 | 0,010 |
| Titanio | Ti | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,022 | 0,024 | 0,016 | 0,023 | 0,017 | 0,020 |
| Talio | Tl | $\mu\text{g}/\text{m}^3$ | | | - | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | $\mu\text{g}/\text{m}^3$ | | | 2 | 0,021 | 0,018 | 0,034 | 0,032 | 0,026 | 0,017 |
| Zinc | Zn | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,135 | 0,155 | 0,068 | 0,184 | 0,084 | 0,127 |

Nota: Concentración de metales calculados a T=10 °C ó 283,15 °K

Excede la Norma Canadiense Ontario's Ambient Air Quality Criteria

N.D.: No detectable

-: No presenta valor de comparación

Tabla A.4.4. Concentraciones de metales en el material particulado del punto CA-VMP-7 comparados referencialmente con los *Ontario's Ambient Air Quality Criteria*

| Parámetros | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-7 | | | | | | |
|-------------------------------------|--------|--------------------------|----------------------|---|-----------|------------|------------|------------|------------|------------|-------|
| | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 | |
| Metales medidos en PM ₁₀ | | | | | | | | | | | |
| Plata | Ag | $\mu\text{g}/\text{m}^3$ | Certimin S.A. | EPA IO-3.5, June 1999 | 1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Aluminio | Al | $\mu\text{g}/\text{m}^3$ | | | - | 0,72 | 0,77 | 0,61 | 0,74 | 0,45 | 0,45 |
| Arsénico | As | $\mu\text{g}/\text{m}^3$ | | | 0,3 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bario | Ba | $\mu\text{g}/\text{m}^3$ | | | | 0,018 | 0,020 | 0,014 | 0,018 | 0,012 | 0,014 |
| Berilio | Be | $\mu\text{g}/\text{m}^3$ | | | 0,01 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Bismuto | Bi | $\mu\text{g}/\text{m}^3$ | | | | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Boro | B | $\mu\text{g}/\text{m}^3$ | | | 120 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Calcio | Ca | $\mu\text{g}/\text{m}^3$ | | | - | 3,17 | 2,79 | 1,94 | 2,44 | 1,77 | 2,13 |
| Cadmio | Cd | $\mu\text{g}/\text{m}^3$ | | | 0,025 | N.D. | N.D. | N.D. | N.D. | 0,002 | N.D. |
| Cobalto | Co | $\mu\text{g}/\text{m}^3$ | | | 0,1 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Cromo | Cr | $\mu\text{g}/\text{m}^3$ | | | 0,5 | 0,025 | 0,032 | 0,035 | 0,043 | 0,036 | 0,029 |
| Cobre | Cu | $\mu\text{g}/\text{m}^3$ | | | 50 | 0,093 | 0,132 | 0,072 | 0,151 | 0,057 | 0,100 |
| Hierro | Fe | $\mu\text{g}/\text{m}^3$ | | | 4 | 1,69 | 1,54 | 1,22 | 1,57 | 0,96 | 0,99 |
| Potasio | K | $\mu\text{g}/\text{m}^3$ | | | - | 0,519 | 0,483 | 0,433 | 0,396 | 0,284 | 0,383 |
| Mercurio | Hg | $\mu\text{g}/\text{m}^3$ | | | 2 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Litio | Li | $\mu\text{g}/\text{m}^3$ | | | 20 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Magnesio | Mg | $\mu\text{g}/\text{m}^3$ | | | - | 1,24 | 1,08 | 1,01 | 0,81 | 0,65 | 0,81 |
| Manganeso | Mn | $\mu\text{g}/\text{m}^3$ | | | 0,2 | 0,039 | 0,035 | 0,026 | 0,034 | 0,023 | 0,024 |
| Molibdeno | Mo | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,004 | N.D. | N.D. | N.D. | N.D. | 0,013 |
| Sodio | Na | $\mu\text{g}/\text{m}^3$ | | | - | 6,62 | 5,46 | 5,70 | 3,67 | 3,25 | 4,27 |
| Níquel | Ni | $\mu\text{g}/\text{m}^3$ | | | 0,1 | 0,011 | 0,014 | 0,015 | 0,021 | 0,010 | N.D. |
| Fosforo | P | $\mu\text{g}/\text{m}^3$ | | | - | 0,307 | 0,203 | 0,101 | 0,202 | 0,107 | 0,163 |
| Plomo | Pb | $\mu\text{g}/\text{m}^3$ | | | 0,5 | 0,135 | 0,301 | 0,061 | 0,248 | 0,117 | 0,137 |
| Antimonio | Sb | $\mu\text{g}/\text{m}^3$ | | | 25 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Selenio | Se | $\mu\text{g}/\text{m}^3$ | | | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Silicio | Si | $\mu\text{g}/\text{m}^3$ | | | - | 1,43 | 1,65 | 1,47 | 1,64 | 0,98 | 0,90 |
| Estaño | Sn | $\mu\text{g}/\text{m}^3$ | 10 | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | | |
| Estroncio | Sr | $\mu\text{g}/\text{m}^3$ | 120 | 0,014 | 0,014 | 0,011 | 0,011 | 0,008 | 0,010 | | |
| Titanio | Ti | $\mu\text{g}/\text{m}^3$ | 120 | 0,031 | 0,033 | 0,029 | 0,033 | 0,017 | 0,017 | | |

| Parámetros | | Unidad | Laboratorio | Método de referencia | Norma Canadiense ($\mu\text{g}/\text{m}^3$) | CA-VMP-7 | | | | | |
|------------|----|--------------------------|-------------|----------------------|---|-----------|------------|------------|------------|------------|------------|
| | | | | | | 8/04/2019 | 11/04/2019 | 16/04/2019 | 24/04/2019 | 25/04/2019 | 26/04/2019 |
| Talio | Tl | $\mu\text{g}/\text{m}^3$ | | | - | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. |
| Vanadio | V | $\mu\text{g}/\text{m}^3$ | | | 2 | 0,022 | 0,026 | 0,033 | 0,045 | 0,025 | 0,024 |
| Zinc | Zn | $\mu\text{g}/\text{m}^3$ | | | 120 | 0,270 | 0,242 | 0,098 | 0,226 | 0,166 | 0,210 |

Nota: Concentración de metales calculados a $T=10\text{ }^{\circ}\text{C}$ ó $283,15\text{ }^{\circ}\text{K}$

Excede la Norma Canadiense Ontario's Ambient Air Quality Criteria

N.D.: No detectable

-: No presenta valor de comparación

ANEXO N° 4



Organismo
de Evaluación
y Fiscalización
Ambiental

Certificados de calibración de los equipos

**REPORTE DE VERIFICACIÓN DE MUESTREADORES
DE PARTÍCULAS HIVOL**

1. Descripción del Instrumento

| | |
|---|-------------------------------------|
| Equipo : Muestreador de partículas | Medición : Flujo Volumétrico |
| Marca : THERMO | Flujo : 1.13 |
| Modelo : HIVOL | Rango : 1.02 to 1.24 m3/min |
| Serie : P9307 | Resolución : 0,056 m3/min |
| Código patrimonial : 60226409-0007 | Exactitud : ± 3.0 % |
| Ubicación : VENTANILLA | Procedencia : USA |

2. Fecha de Verificación 13/08/2018 **Próxima Verificación**

3. Lugar de Verificación OEFA - CHORRILLOS

4. Método de Verificación La verificación se realizó según el procedimiento indicado en el manual de operación del fabricante¹.

¹OPERATIONS MANUAL - TE-6000 Series, Particulate Matter 10 Microns and less U.S. EPA Federal Reference Number RFP5-0202-141 High Volume Air Sampler

5. Trazabilidad Los resultados de la verificación tienen trazabilidad. Se utilizaron los siguientes patrones:

| Descripción | Marca | Serie / Lote | Nº Certificado |
|---------------------|-------|--------------|----------------|
| VARIFLOW | TISCH | 2941 | 2941 |
| CALIBRADOR DE FLUJO | BGI | 162605 | 162605 |

6. Condiciones Ambientales

| Temperatura (°C) | Temperatura (°K) | Presión Barométrica (mmHg) |
|------------------|------------------|----------------------------|
| 20.6 | 293.6 | 757.5 |

7. Resultados

| Calibrador | |
|------------|----------|
| Slope (m) | Int (b) |
| 1.02503 | -0.01620 |

| Pto | Orificio "H2O | Qa m3/min | Muestreador "H2O | Pf mmHg | Po/Pa | Tabla de verificación m3/min | % Diferencia |
|-----|---------------|-----------|------------------|---------|-------|------------------------------|--------------|
| 1 | 3.75 | 1.19 | 12.00 | 22.40 | 0.970 | 1.179 | 1.09 |
| 2 | 3.70 | 1.18 | 14.00 | 26.13 | 0.966 | 1.174 | 0.85 |
| 3 | 3.62 | 1.17 | 16.10 | 30.05 | 0.960 | 1.166 | 0.46 |
| 4 | 3.60 | 1.17 | 18.00 | 33.59 | 0.956 | 1.161 | 0.62 |
| 5 | 3.50 | 1.15 | 20.80 | 38.82 | 0.949 | 1.152 | 0.01 |

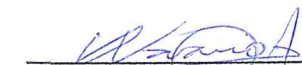
% Diferencia: Las directrices de la EPA indican que la diferencia porcentual debe estar dentro de ± 4%. Si es mayor puede deberse a fugas presente durante la verificación y debería ser verificado nuevamente.

| Cálculos |
|--|
| $(Qa) = 1/m * (RAIZ(H2O * (Ta/Pa)) - b)$ |
| $(Po/Pa) = 1 - Pf/Pa$ |
| $\% \text{ Diferencia} = (Look \ Up \ Flow - Qa) / Qa * 100$ |

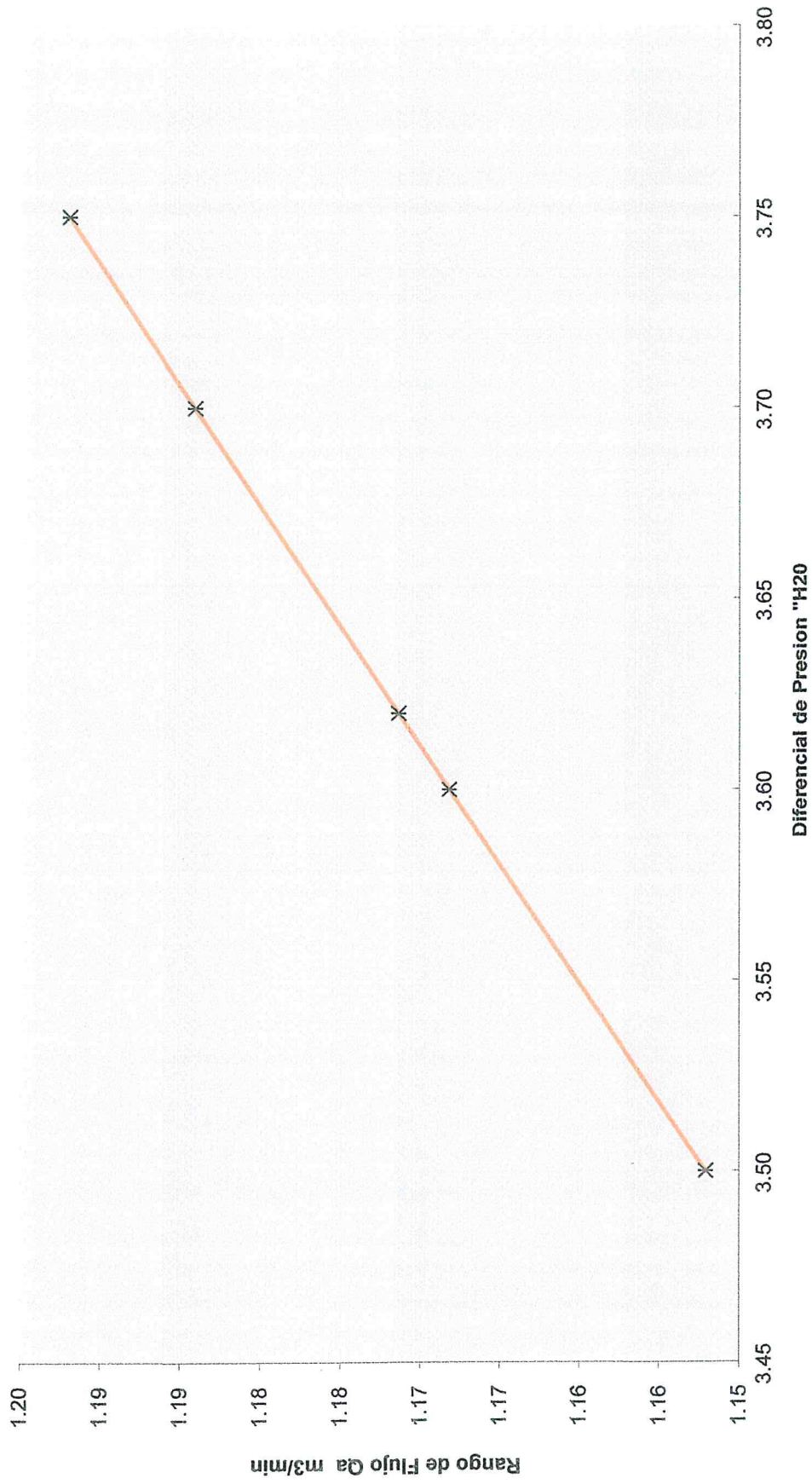
8. Conclusión

- * Los resultados del presente documento son válidos únicamente para el objeto verificado.
- * El instrumento se encuentra en buen estado y dentro de las tolerancias establecidas por el fabricante.


 Técnico de calidad del aire
 Pedro Miranda Rodríguez


 Coordinador de la gestión de
 muestras y equipos ambientales
 Omar Navarro Acosta

Curva de Verificación



Handwritten signature

Certificate of Calibration

| Calibration Certification Information | | | |
|---------------------------------------|------------------------|------------|-------|
| Cal. Date: August 10, 2018 | Rootsmeter S/N: 438320 | Ta: 296 | °K |
| Operator: Jim Tisch | | Pa: 750.57 | mm Hg |
| Calibration Model #: TE-5028A | Calibrator S/N: 2941 | | |

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|----------------|-----------------|------------|-------------|------------|-------------|
| 1 | 1 | 2 | 1 | 1.2970 | 4.1 | 1.50 |
| 2 | 3 | 4 | 1 | 1.0070 | 6.7 | 2.50 |
| 3 | 5 | 6 | 1 | 0.9190 | 8.1 | 3.00 |
| 4 | 7 | 8 | 1 | 0.8500 | 9.4 | 3.50 |
| 5 | 9 | 10 | 1 | 0.6450 | 16.2 | 6.00 |

| Data Tabulation | | | | | |
|-----------------|---------------|--|-----------|-------------|---|
| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H \left(Ta/Pa \right)}$ (y-axis) |
| 0.9888 | 0.7624 | 1.2212 | 0.9945 | 0.7668 | 0.7691 |
| 0.9854 | 0.9785 | 1.5766 | 0.9911 | 0.9842 | 0.9929 |
| 0.9835 | 1.0702 | 1.7271 | 0.9892 | 1.0764 | 1.0877 |
| 0.9818 | 1.1551 | 1.8655 | 0.9875 | 1.1617 | 1.1749 |
| 0.9728 | 1.5082 | 2.4425 | 0.9784 | 1.5169 | 1.5382 |
| QSTD | m= | 1.63696 | QA | m= | 1.02503 |
| | b= | -0.02573 | | b= | -0.01620 |
| | r= | 1.00000 | | r= | 1.00000 |

| Calculations | | | |
|--|---|------------|--|
| Vstd= | $\Delta Vol \left(\frac{Pa - \Delta P}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)$ | Va= | $\Delta Vol \left(\frac{Pa - \Delta P}{Pa} \right)$ |
| Qstd= | $Vstd / \Delta Time$ | Qa= | $Va / \Delta Time$ |
| For subsequent flow rate calculations: | | | |
| Qstd= | $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$ | Qa= | $1/m \left(\left(\sqrt{\Delta H \left(Ta/Pa \right)} \right) - b \right)$ |

| Standard Conditions | |
|---------------------|---------------------------------------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| Key | |
| ΔH: | calibrator manometer reading (in H2O) |
| ΔP: | rootsmeter manometer reading (mm Hg) |
| Ta: | actual absolute temperature (°K) |
| Pa: | actual barometric pressure (mm Hg) |
| b: | intercept |
| m: | slope |

| RECALIBRATION |
|---|
| US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30. |



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 Dresser Inc.
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 USA
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Customer Information

Name : CROCKER COMPANY
 PO No. : 11032
 Badge No. : NONE

Date Printed : 09 15 2015
 Bill of Material 055217-172
 Model : 5M175
 Serial No. : 0438320
 Sales Order No. 213535-1
 Spec. Req. No.
 Prover Used : 50 cu. ft.
 WME :

Unit Description

5M175 SERIES B3 ROOTS METER, CEX,
 WITH CONDUIT PORT W/4' PIGTAIL

| MIN STATIC TEST PRESSURE | MIN LEAK TEST PRESSURE | MAX ALLOWABLE OPER PRESSURE | TC Acc at (deg F) | Accuracy | Proof | % Error |
|--------------------------|------------------------|-----------------------------|-------------------|----------|-------|---------|
| 350 psig | 219 psig | 175 psig | | | | |

This meter has been tested and successfully passed a Shell Pressure Test and Leak Test at the above conditions.

P R O V E R T E S T D A T A

| Test Point | Flow Rate Dis Vol | % Rated Capacity | Meter Accuracy | ERROR +/- % | Diff Pressure | TC Meter Accuracy | TC Meter Proof % | ERROR +/- % |
|------------|-------------------|------------------|----------------|-------------|---------------|-------------------|------------------|-------------|
| 1 | 5006.9 | 100.1 | 100.27 | 0.27 | 1.17 | | | |
| 2 | 3722.0 | 74.4 | 99.90 | -0.10 | 0.70 | | | |
| 3 | 2489.5 | 49.8 | 100.19 | 0.19 | 0.31 | | | |
| 4 | 1247.7 | 25.0 | 99.95 | -0.05 | 0.09 | | | |
| 5 | 505.7 | 10.1 | 99.97 | -0.03 | 0.02 | | | |

Above data has been determined from tests performed with air at atmospheric pressure and ambient temperature, using positive displacement bell or piston provers or sonic nozzle provers dimensionally traceable to the United States National Institute of Standards and Technology (NIST) and/or traceable to the Netherlands Measurement Institute (NMI) for volumetric flow rate.

NMI accredited laboratory no: CE-085

This meter conforms to purchaser specifications.

Test date 15-September-15 by BUSHART, DAVID

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered



CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

tetraCal Serial Number: 162605

DATE: 26-Jul-2018

Calibration Operator: E. Albuja

Critical Venturi Flow Meter: Max Uncertainty = 0.346%
Serial Number: 1A CEESI NVLAP NIST Data File 07BGI-0001
Serial Number: 2A CEESI NVLAP NIST Data File 07BGI-0003
Serial Number: 3A CEESI NVLAP NIST Data File 07BGI-0004
Serial Number: 4A CEESI NVLAP NIST Data File 07BGI-0002

Room Temperature: +/- 0.03°C from -5°C - 70°C Room Temperature: 21.3 °C
Brand: Telatemp Serial Number: 358654
Std Cal Date 23-Oct-17 Std Cal Due Date 23-Oct-18
tetraCal:
Ambient Temperature (set): 21.3 °C 911
Aux (filter) Temperature (set): °C

Barometric Pressure and Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
Serial Number: C4310002
Std Cal Date 26-Mar-18 Std Cal Due Date 26-Mar-19
tetraCal:
Barometric pressure (set): 748 mm of Hg

Results of Venturi Calibration

Flow Rate (Q) vs. Pressure Drop (ΔP).

Where: Q=Lpm, ΔP = Cm of H2O

No. 1 C 5.35439 ΔP ^ 0.51955
No. 2 C 1.16605 ΔP ^ 0.52384
No. 3 C 0.21100 ΔP ^ 0.54025

Overall Uncertainty: 0.35%

Date Placed In Service _____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: March 2016
Cal102-03T1 Rev B

To Check a Tetra Cal
6 - 30.00 Lpm
VER.

26-Jul-2018 E. Albuja

BP= 748 mm of Hg

3.41P

Maximum allowable error at any flow rate is .75%.

Serial No. 162605

| Reading | | CV | | | | |
|-------------|------|-------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | TriCal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 193.73 | 21.3 | 7.60 | | 7.65 | 0.73 | |
| 486.64 | 21.3 | 19.38 | | 19.39 | 0.04 | Average % |
| 729.47 | 21.3 | 29.15 | | 29.06 | -0.33 | 0.15 |

To Check a Tetra Cal
1.20 - 6.00 Lpm

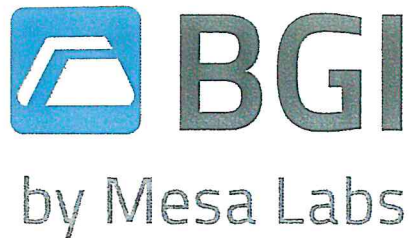
BP= 748 mm of Hg

| Reading | | CV | | | | |
|-------------|------|------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | Tri Cal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 137.0 | 21.5 | 1.53 | | 1.53 | 0.57 | |
| 341.9 | 21.5 | 3.88 | | 3.86 | -0.42 | Average % |
| 520.6 | 21.5 | 5.93 | | 5.96 | 0.54 | 0.23 |

To Check a Tetra Cal
0.10 - 1.20 Lpm

BP= 748 mm of Hg

| Reading | | CV | | | | |
|-------------|------|-------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | TriCal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 219.15 | 21.7 | 0.397 | | 0.399 | 0.50 | |
| 553.82 | 21.7 | 1.049 | | 1.049 | 0.00 | Average % |
| 625.4 | 21.7 | 1.188 | | 1.194 | 0.47 | 0.32 |



REGISTER YOUR PRODUCT TODAY!

Mesa Labs' BGI instruments are precision measuring instruments designed to provide highly-accurate and repeatable measurements. Recognized worldwide for their accuracy, Mesa's products are manufactured and serviced in our ISO 17025-accredited laboratory offering $\pm 0.08\%$ Scope of Accreditation for gas flow by NVLAP of NIST. Harsh environments, accidental damage, environmental factors and simple time and use can, over time, impact the calibration of any instrument. Our NIST-traceable calibrations ensure all of your data readings are accurate and repeatable. Registering your product is the first step in maintaining world-class accuracy for your BGI instrument.

Visit bgi.mesalabs.com to complete the short form that will align your instrument with our product maintenance database. Once complete, you will be able to better manage your BGI fleet by receiving timely reminders at 45 and 15 days prior to the recommended calibration date of your instrument. In addition you will receive vital calibration and firmware/hardware updates. Taking the time to register ensures your instruments warranty claim information is properly documented in Mesa's database.

We recommend annual service and calibration of your BGI instrument as a periodic quality assurance measure, as well as to provide you and your organization with a defensible audit trail of premier quality.

WHAT IS INCLUDED IN FACTORY CALIBRATION?

Maintenance of your BGI instrument is actually a full product refurbishment and calibration performed by the same experienced technicians that build the new BGI instruments. Our ISO 17025/ANSI Z-540 accreditation and documented traceability ensures our accuracy claims are met. A Mesa factory calibration includes:

- Disassembly and inspection of the instrument for wear, defect, contaminants and damage
- Full cleaning, repair and/or replacement of parts as needed
- Battery test/replacement
- Upgraded firmware and hardware
- Temperature and pressure sensor calibration if required
- Multi-point flow calibration with adjustment
- NIST-traceable calibration certificate with As-Found (pre) and As-Left (post) data
- 90-day service warranty

FACTORY CALIBRATION vs. 3RD PARTY CALIBRATION LABORATORIES

Mesa Labs is the only laboratory that can perform a BGI calibration in the US. Third party calibration laboratories cannot adjust your instrument. These other labs can only perform verifications, not calibrations and will only issue a NIST-traceable certificate that identifies the instrument falls within claimed accuracy specifications.

This means that they cannot reset calibration points, perform repairs and maintenance with authorized parts, provide hardware and firmware updates or even check and change batteries.

Please feel free to contact us with any questions or concerns at csbutler@mesalabs.com or at 973-492-8400.

REPORTE DE VERIFICACIÓN DE MUESTREADORES
DE PARTÍCULAS HIVOL

1. Descripción del Instrumento

| | |
|------------------------------------|------------------------------|
| Equipo : Muestreador de partículas | Medición : Flujo Volumétrico |
| Marca : THERMO | Flujo : 1.13 |
| Modelo : HIVOL | Rango : 1.02 to 1.24 m3/min |
| Serie : P9308 | Resolución : 0,056 m3/min |
| Código patrimonial : 60226409-0006 | Exactitud : ± 3.0 % |
| Ubicación : VENTANILLA | Procedencia : USA |

2. Fecha de Verificación 13/08/2018 Próxima Verificación

3. Lugar de Verificación OEFA - CHORRILLOS

4. Método de Verificación La verificación se realizó según el procedimiento indicado en el manual de operación del fabricante¹.

¹OPERATIONS MANUAL - TE-6000 Series, Particulate Matter 10 Microns and less U.S. EPA Federal Reference Number RFP5-0202-141 High Volume Air Sampler

5. Trazabilidad Los resultados de la verificación tienen trazabilidad. Se utilizaron los siguientes patrones:

| Descripción | Marca | Serie / Lote | Nº Certificado |
|---------------------|-------|--------------|----------------|
| VARIFLOW | TISCH | 2941 | 2941 |
| CALIBRADOR DE FLUJO | BGI | 162605 | 162605 |

6. Condiciones Ambientales

| Temperatura (°C) | Temperatura (°K) | Presión Barométrica (mmHg) |
|------------------|------------------|----------------------------|
| 20.6 | 293.6 | 757.5 |

7. Resultados

| Calibrador | |
|------------|----------|
| Slope (m) | Int.(b) |
| 1.02503 | -0.01620 |

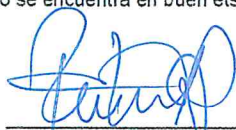
| Pto | Orificio "H2O | Qa m3/min | Muestreador "H2O | Pf mmHg | Po/Pa | Tabla de verificación m3/min | % Diferencia |
|-----|---------------|-----------|------------------|---------|-------|------------------------------|--------------|
| 1 | 3.80 | 1.20 | 11.90 | 22.21 | 0.971 | 1.188 | 0.98 |
| 2 | 3.75 | 1.19 | 13.90 | 25.94 | 0.966 | 1.181 | 0.92 |
| 3 | 3.70 | 1.18 | 16.10 | 30.05 | 0.960 | 1.174 | 0.85 |
| 4 | 3.65 | 1.18 | 18.10 | 33.78 | 0.955 | 1.167 | 0.78 |
| 5 | 3.55 | 1.16 | 21.10 | 39.38 | 0.948 | 1.158 | 0.19 |


% Diferencia: Las directrices de la EPA indican que la diferencia porcentual debe estar dentro de ± 4%. Si es mayor puede deberse a fugas presente durante la verificación y debería ser verificado nuevamente.

| Cálculos |
|--|
| $(Qa) = 1/m * (RAIZ(H2O * (Ta/Pa)) - b)$ |
| $(Po/Pa) = 1 - Pf/Pa$ |
| $\% Diferencia = (Look Up Flow - Qa) / Qa * 100$ |

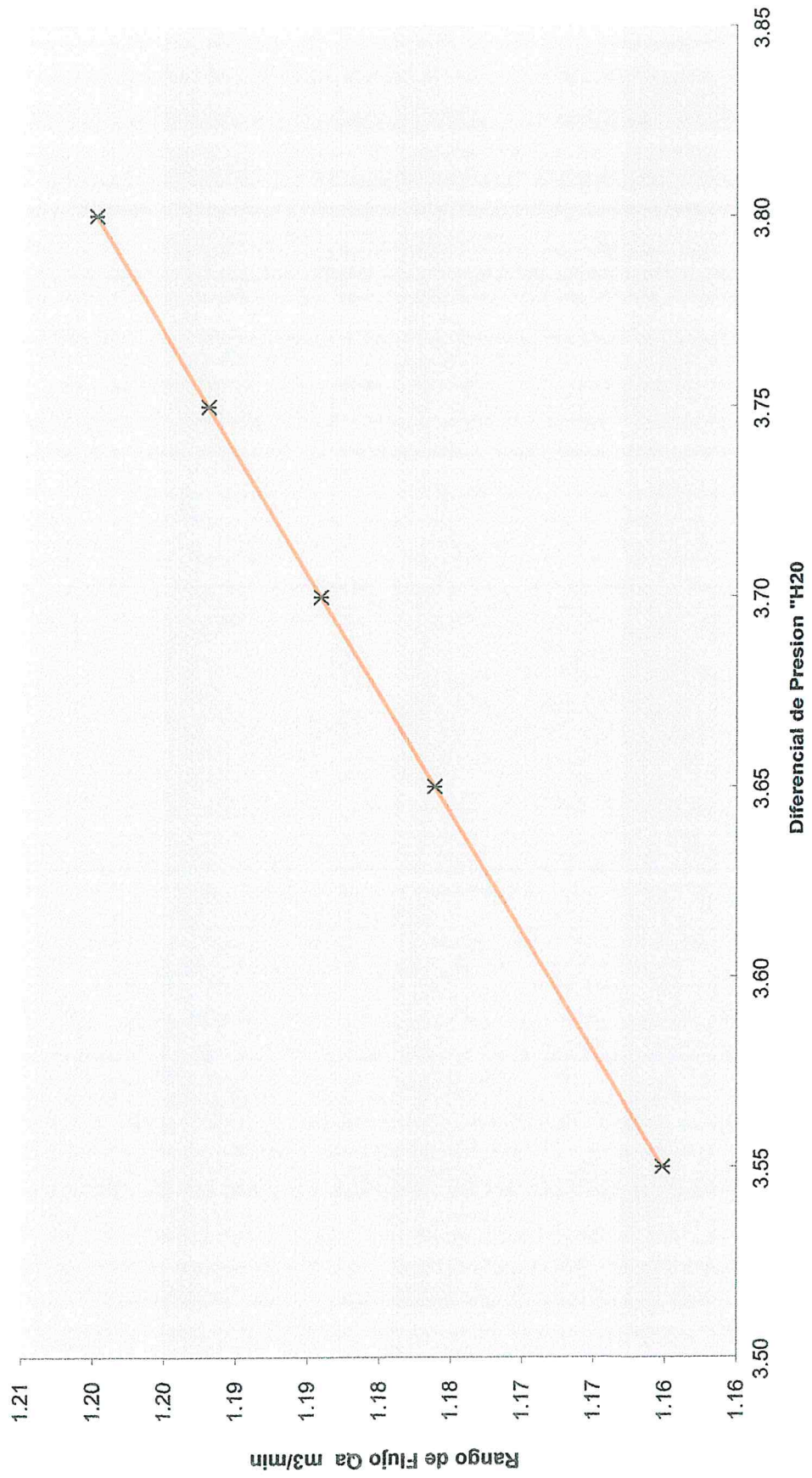
8. Conclusión

- * Los resultados del presente documento son válidos únicamente para el objeto verificado.
- * El instrumento se encuentra en buen estado y dentro de las tolerancias establecidas por el fabricante.


Técnico de calidad del aire
Pedro Miranda Rodríguez


Coordinador de la gestión de
muestras y equipos ambientales
Omar Navarro Acosta

Curva de Verificación



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Certificate of Calibration

| Calibration Certification Information | | | |
|---------------------------------------|------------------------|------------|-------|
| Cal. Date: August 10, 2018 | Rootsmeter S/N: 438320 | Ta: 296 | °K |
| Operator: Jim Tisch | | Pa: 750.57 | mm Hg |
| Calibration Model #: TE-5028A | Calibrator S/N: 2941 | | |

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|----------------|-----------------|------------|-------------|------------|-------------|
| 1 | 1 | 2 | 1 | 1.2970 | 4.1 | 1.50 |
| 2 | 3 | 4 | 1 | 1.0070 | 6.7 | 2.50 |
| 3 | 5 | 6 | 1 | 0.9190 | 8.1 | 3.00 |
| 4 | 7 | 8 | 1 | 0.8500 | 9.4 | 3.50 |
| 5 | 9 | 10 | 1 | 0.6450 | 16.2 | 6.00 |

| Data Tabulation | | | | | |
|-----------------|---------------|--|-----------|-------------|---|
| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H \left(Ta/Pa \right)}$ (y-axis) |
| 0.9888 | 0.7624 | 1.2212 | 0.9945 | 0.7668 | 0.7691 |
| 0.9854 | 0.9785 | 1.5766 | 0.9911 | 0.9842 | 0.9929 |
| 0.9835 | 1.0702 | 1.7271 | 0.9892 | 1.0764 | 1.0877 |
| 0.9818 | 1.1551 | 1.8655 | 0.9875 | 1.1617 | 1.1749 |
| 0.9728 | 1.5082 | 2.4425 | 0.9784 | 1.5169 | 1.5382 |
| QSTD | m= | 1.63696 | QA | m= | 1.02503 |
| | b= | -0.02573 | | b= | -0.01620 |
| | r= | 1.00000 | | r= | 1.00000 |

| Calculations | | | |
|--|---|-------------|--|
| Vstd = | $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$ | Va = | $\Delta Vol((Pa-\Delta P)/Pa)$ |
| Qstd = | $Vstd/\Delta Time$ | Qa = | $Va/\Delta Time$ |
| For subsequent flow rate calculations: | | | |
| Qstd = | $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$ | Qa = | $1/m \left(\left(\sqrt{\Delta H \left(Ta/Pa \right)} \right) - b \right)$ |

| Standard Conditions | |
|---------------------|---------------------------------------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| Key | |
| ΔH: | calibrator manometer reading (in H2O) |
| ΔP: | rootsmeter manometer reading (mm Hg) |
| Ta: | actual absolute temperature (°K) |
| Pa: | actual barometric pressure (mm Hg) |
| b: | intercept |
| m: | slope |

| RECALIBRATION |
|---|
| US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30. |



GE Oil & Gas
 Dresser Inc.
 16240 Port Northwest Drive, Suite 100
 Houston, TX 77041
 USA
 T +1 800 521 1114 +1 832 590 2303
 F +1 800 335 5224 +1 832 590 2494

Customer Information
 Name : CROCKER COMPANY
 PO No. : 11032
 Badge No. : NONE

Date Printed : 09 15 2015
 Bill of Material 055217-172
 Model : 5M175
 Serial No. : 0438320
 Sales Order No. 213535-1
 Spec. Req. No.
 Prover Used : 50 cu. ft.
 WME :

Unit Description

5M175 SERIES B3 ROOTS METER, CEX,
 WITH CONDUIT PORT W/4' PIGTAIL

| MIN STATIC TEST PRESSURE | MIN LEAK TEST PRESSURE | MAX ALLOWABLE OPER PRESSURE | TC Acc at (deg F) | Accuracy | Proof | % Error |
|--------------------------|------------------------|-----------------------------|-------------------|----------|-------|---------|
| 350 psig | 219 psig | 175 psig | | | | |

This meter has been tested and successfully passed a Shell Pressure Test and Leak Test at the above conditions.

P R O V E R T E S T D A T A

| Test Point | Flow Rate Dis Vol | % Rated Capacity | Meter Accuracy | ERROR +/- % | Diff Pressure | TC Meter Accuracy | TC Meter Proof % | ERROR +/- % |
|------------|-------------------|------------------|----------------|-------------|---------------|-------------------|------------------|-------------|
| 1 | 5006.9 | 100.1 | 100.27 | 0.27 | 1.17 | | | |
| 2 | 3722.0 | 74.4 | 99.90 | -0.10 | 0.70 | | | |
| 3 | 2489.5 | 49.8 | 100.19 | 0.19 | 0.31 | | | |
| 4 | 1247.7 | 25.0 | 99.95 | -0.05 | 0.09 | | | |
| 5 | 505.7 | 10.1 | 99.97 | -0.03 | 0.02 | | | |

Above data has been determined from tests performed with air at atmospheric pressure and ambient temperature, using positive displacement bell or piston provers or sonic nozzle provers dimensionally traceable to the United States National Institute of Standards and Technology (NIST) and/or traceable to the Netherlands Measurement Institute (NMI) for volumetric flow rate.

NMI accredited laboratory no: CE-085

This meter conforms to purchaser specifications.

Test date 15-September-15 by BUSHART, DAVID

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered



CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

tetraCal Serial Number: 162605

DATE: 26-Jul-2018

Calibration Operator: E. Albuja

Critical Venturi Flow Meter: Max Uncertainty = 0.346%
Serial Number: 1A CEESI NVLAP NIST Data File 07BGI-0001
Serial Number: 2A CEESI NVLAP NIST Data File 07BGI-0003
Serial Number: 3A CEESI NVLAP NIST Data File 07BGI-0004
Serial Number: 4A CEESI NVLAP NIST Data File 07BGI-0002

| | | | |
|--|-------------------|------------------|-----------|
| Room Temperature: +/- 0.03°C from -5°C - 70°C | Room Temperature: | 21.3 °C | |
| Brand: Telatemp | Serial Number: | 358654 | |
| Std Cal Date | 23-Oct-17 | Std Cal Due Date | 23-Oct-18 |
| tetraCal: | | | |
| Ambient Temperature (set): | 21.3 °C | 911 | |
| Aux (filter) Temperature (set): | °C | | |

Barometric Pressure and Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
Serial Number: C4310002
Std Cal Date 26-Mar-18 Std Cal Due Date 26-Mar-19
tetraCal:
Barometric pressure (set): 748 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP = Cm of H2O

| | | | | | |
|-------|---|---------|------------|---|---------|
| No. 1 | C | 5.35439 | ΔP | ^ | 0.51955 |
| No. 2 | C | 1.16605 | ΔP | ^ | 0.52384 |
| No. 3 | C | 0.21100 | ΔP | ^ | 0.54025 |

Overall Uncertainty: 0.35%

Date Placed In Service _____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

To Check a Tetra Cal
 6 - 30.00 Lpm
 VER.

26-Jul-2018 E. Albuja

BP= 748 mm of Hg

3.41P

Maximum allowable error at any flow rate is .75%.

Serial No. 162605

| Reading | | CV | | | | |
|-------------|------|-------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | TriCal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 193.73 | 21.3 | 7.60 | | 7.65 | 0.73 | |
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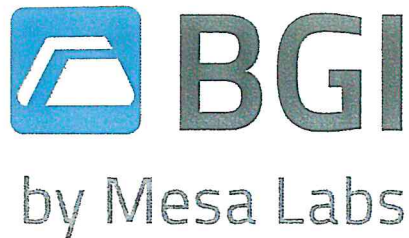
BP= 748 mm of Hg

| Reading | | CV | | | | |
|-------------|------|------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | Tri Cal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 137.0 | 21.5 | 1.53 | | 1.53 | 0.57 | |
| 341.9 | 21.5 | 3.88 | | 3.86 | -0.42 | Average % |
| 520.6 | 21.5 | 5.93 | | 5.96 | 0.54 | 0.23 |

To Check a Tetra Cal
 0.10 - 1.20 Lpm

BP= 748 mm of Hg

| Reading | | CV | | | | |
|-------------|------|-------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | TriCal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 219.15 | 21.7 | 0.397 | | 0.399 | 0.50 | |
| 553.82 | 21.7 | 1.049 | | 1.049 | 0.00 | Average % |
| 625.4 | 21.7 | 1.188 | | 1.194 | 0.47 | 0.32 |



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- Battery test/replacement
- Upgraded firmware and hardware
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- Multi-point flow calibration with adjustment
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FACTORY CALIBRATION vs. 3RD PARTY CALIBRATION LABORATORIES

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REPORTE DE VERIFICACIÓN DE MUESTREADORES
DE PARTÍCULAS HIVOL

1. Descripción del Instrumento

| | |
|------------------------------------|------------------------------|
| Equipo : Muestreador de partículas | Medición : Flujo Volumétrico |
| Marca : THERMO | Flujo : 1.13 |
| Modelo : HIVOL | Rango : 1.02 to 1.24 m3/min |
| Serie : P9309 | Resolución : 0,056 m3/min |
| Código patrimonial : 60226409-0013 | Exactitud : ± 3.0 % |
| Ubicación : VENTANILLA | Procedencia : USA |

2. Fecha de Verificación 13/08/2018 Próxima Verificación

3. Lugar de Verificación OEFA - CHORRILLOS

4. Método de Verificación La verificación se realizó según el procedimiento indicado en el manual de operación del fabricante¹.

¹OPERATIONS MANUAL - TE-6000 Series, Particulate Matter 10 Microns and less U.S. EPA Federal Reference Number RFP5-0202-141 High Volume Air Sampler

5. Trazabilidad Los resultados de la verificación tienen trazabilidad. Se utilizaron los siguientes patrones:

| Descripción | Marca | Serie / Lote | Nº Certificado |
|---------------------|-------|--------------|----------------|
| VARIFLOW | TISCH | 2941 | 2941 |
| CALIBRADOR DE FLUJO | BGI | 162605 | 162605 |

6. Condiciones Ambientales

| Temperatura (°C) | Temperatura (°K) | Presión Barométrica (mmHg) |
|------------------|------------------|----------------------------|
| 20.6 | 293.6 | 757.5 |

7. Resultados

| Calibrador | |
|------------|----------|
| Slope (m) | Int (b) |
| 1.02503 | -0.01620 |

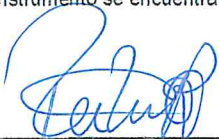
| Pto | Orificio "H2O | Qa m3/min | Muestreador "H2O | Pf mmHg | Po/Pa | Tabla de verificación m3/min | % Diferencia |
|-----|---------------|-----------|------------------|---------|-------|------------------------------|--------------|
| 1 | 3.75 | 1.19 | 12.30 | 22.96 | 0.970 | 1.179 | 1.09 |
| 2 | 3.70 | 1.18 | 14.40 | 26.87 | 0.965 | 1.175 | 0.77 |
| 3 | 3.65 | 1.18 | 16.30 | 30.42 | 0.960 | 1.166 | 0.87 |
| 4 | 3.60 | 1.17 | 18.30 | 34.15 | 0.955 | 1.160 | 0.70 |
| 5 | 3.52 | 1.16 | 20.60 | 38.45 | 0.949 | 1.152 | 0.29 |

% Diferencia: Las directrices de la EPA indican que la diferencia porcentual debe estar dentro de ± 4%. Si es mayor puede deberse a fugas presente durante la verificación y debería ser verificado nuevamente.

| Cálculos |
|--|
| $(Qa) = 1/m * (RAIZ(H2O * (Ta/Pa)) - b)$ |
| $(Po/Pa) = 1 - Pf/Pa$ |
| $\% \text{ Diferencia} = (Look \ Up \ Flow - Qa) / Qa * 100$ |

8. Conclusión

- * Los resultados del presente documento son válidos únicamente para el objeto verificado.
- * El instrumento se encuentra en buen estado y dentro de las tolerancias establecidas por el fabricante.

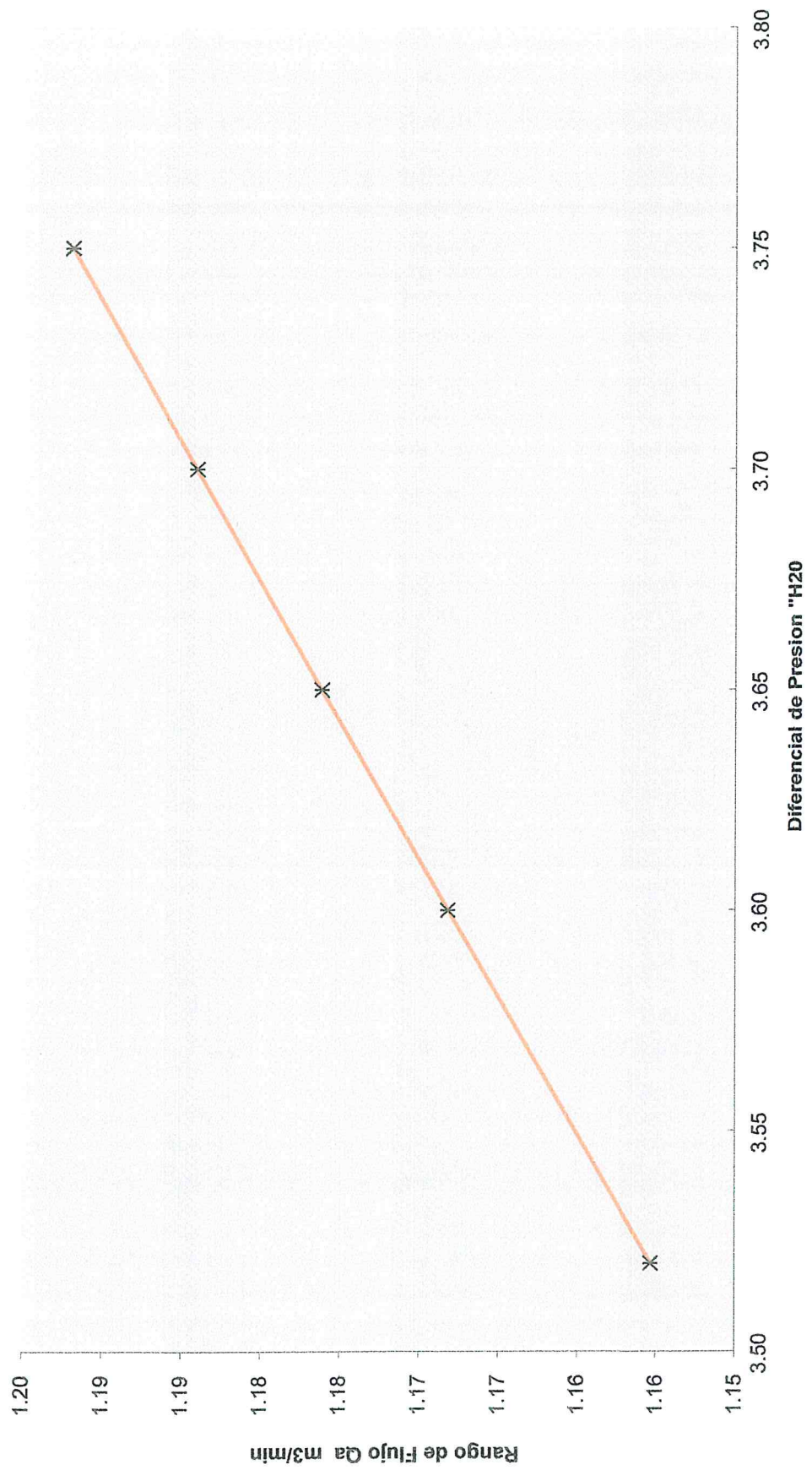


Técnico de calidad del aire
Pedro Miranda Rodríguez



Coordinador de la gestión de
muestras y equipos ambientales
Omar Navarro Acosta

Curva de Verificación



Handwritten signature

Certificate of Calibration

| Calibration Certification Information | | | |
|---------------------------------------|-----------------------------|------------|-------|
| Cal. Date: August 10, 2018 | Rootsmeter S/N: 438320 | Ta: 296 | °K |
| Operator: Jim Tisch | | Pa: 750.57 | mm Hg |
| Calibration Model #: TE-5028A | Calibrator S/N: 2941 | | |

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|----------------|-----------------|------------|-------------|------------|-------------|
| 1 | 1 | 2 | 1 | 1.2970 | 4.1 | 1.50 |
| 2 | 3 | 4 | 1 | 1.0070 | 6.7 | 2.50 |
| 3 | 5 | 6 | 1 | 0.9190 | 8.1 | 3.00 |
| 4 | 7 | 8 | 1 | 0.8500 | 9.4 | 3.50 |
| 5 | 9 | 10 | 1 | 0.6450 | 16.2 | 6.00 |

| Data Tabulation | | | | | |
|-----------------|---------------|--|-----------|-------------|---|
| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H \left(Ta/Pa \right)}$ (y-axis) |
| 0.9888 | 0.7624 | 1.2212 | 0.9945 | 0.7668 | 0.7691 |
| 0.9854 | 0.9785 | 1.5766 | 0.9911 | 0.9842 | 0.9929 |
| 0.9835 | 1.0702 | 1.7271 | 0.9892 | 1.0764 | 1.0877 |
| 0.9818 | 1.1551 | 1.8655 | 0.9875 | 1.1617 | 1.1749 |
| 0.9728 | 1.5082 | 2.4425 | 0.9784 | 1.5169 | 1.5382 |
| QSTD | m= | 1.63696 | QA | m= | 1.02503 |
| | b= | -0.02573 | | b= | -0.01620 |
| | r= | 1.00000 | | r= | 1.00000 |

| Calculations | | | |
|--|---|------------|--|
| Vstd= | $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$ | Va= | $\Delta Vol((Pa-\Delta P)/Pa)$ |
| Qstd= | $Vstd/\Delta Time$ | Qa= | $Va/\Delta Time$ |
| For subsequent flow rate calculations: | | | |
| Qstd= | $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$ | Qa= | $1/m \left(\left(\sqrt{\Delta H \left(Ta/Pa \right)} \right) - b \right)$ |

| Standard Conditions | |
|---------------------|---------------------------------------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| Key | |
| ΔH: | calibrator manometer reading (in H2O) |
| ΔP: | rootsmeter manometer reading (mm Hg) |
| Ta: | actual absolute temperature (°K) |
| Pa: | actual barometric pressure (mm Hg) |
| b: | intercept |
| m: | slope |

| RECALIBRATION |
|---|
| US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30. |



GE Oil & Gas
 Dresser Inc.
 16240 Port Northwest Drive, Suite 100
 Houston, TX 77041
 USA
 T +1 800 521 1114 +1 832 590 2303
 F +1 800 335 5224 +1 832 590 2494

Customer Information

Name : CROCKER COMPANY
 PO No. : 11032
 Badge No. : NONE

Date Printed : 09 15 2015
 Bill of Material 055217-172
 Model : 5M175
 Serial No. : 0438320
 Sales Order No. 213535-1
 Spec. Req. No.
 Prover Used : 50 cu. ft.
 WME :

Unit Description

5M175 SERIES B3 ROOTS METER, CEX,
 WITH CONDUIT PORT W/4' PIGTAIL

| MIN STATIC TEST PRESSURE | MIN LEAK TEST PRESSURE | MAX ALLOWABLE OPER PRESSURE | TC Acc at (deg F) | Accuracy | Proof | % Error |
|--------------------------|------------------------|-----------------------------|-------------------|----------|-------|---------|
| 350 psig | 219 psig | 175 psig | | | | |

This meter has been tested and successfully passed a Shell Pressure Test and Leak Test at the above conditions.

P R O V E R T E S T D A T A

| Test Point | Flow Rate Dis Vol | % Rated Capacity | Meter Accuracy | ERROR +/- % | Diff Pressure | TC Meter Accuracy | TC Meter Proof % | ERROR +/- % |
|------------|-------------------|------------------|----------------|-------------|---------------|-------------------|------------------|-------------|
| 1 | 5006.9 | 100.1 | 100.27 | 0.27 | 1.17 | | | |
| 2 | 3722.0 | 74.4 | 99.90 | -0.10 | 0.70 | | | |
| 3 | 2489.5 | 49.8 | 100.19 | 0.19 | 0.31 | | | |
| 4 | 1247.7 | 25.0 | 99.95 | -0.05 | 0.09 | | | |
| 5 | 505.7 | 10.1 | 99.97 | -0.03 | 0.02 | | | |

Above data has been determined from tests performed with air at atmospheric pressure and ambient temperature, using positive displacement bell or piston provers or sonic nozzle provers dimensionally traceable to the United States National Institute of Standards and Technology (NIST) and/or traceable to the Netherlands Measurement Institute (NMI) for volumetric flow rate.

NMI accredited laboratory no: CE-085

This meter conforms to purchaser specifications.

Test date 15-September-15 by BUSHART, DAVID

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered



CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

tetraCal Serial Number: 162605

DATE: 26-Jul-2018

Calibration Operator: E. Albuja

Critical Venturi Flow Meter: Max Uncertainty = 0.346%
Serial Number: 1A CEESI NVLAP NIST Data File 07BGI-0001
Serial Number: 2A CEESI NVLAP NIST Data File 07BGI-0003
Serial Number: 3A CEESI NVLAP NIST Data File 07BGI-0004
Serial Number: 4A CEESI NVLAP NIST Data File 07BGI-0002

Room Temperature: +/- 0.03°C from -5°C - 70°C Room Temperature: 21.3 °C
Brand: Telatemp Serial Number: 358654
Std Cal Date 23-Oct-17 Std Cal Due Date 23-Oct-18
tetraCal:
Ambient Temperature (set): 21.3 °C 911
Aux (filter) Temperature (set): °C

Barometric Pressure and Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
Serial Number: C4310002
Std Cal Date 26-Mar-18 Std Cal Due Date 26-Mar-19
tetraCal:
Barometric pressure (set): 748 mm of Hg

Results of Venturi Calibration

Flow Rate (Q) vs. Pressure Drop (ΔP).

Where: Q=Lpm, ΔP= Cm of H2O

No. 1 C 5.35439 ΔP ^ 0.51955
No. 2 C 1.16605 ΔP ^ 0.52384
No. 3 C 0.21100 ΔP ^ 0.54025

Overall Uncertainty: 0.35%

Date Placed In Service _____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: March 2016
Cal102-03T1 Rev B

To Check a Tetra Cal
 6 - 30.00 Lpm
 VER.

26-Jul-2018 E. Albuja

BP= 748 mm of Hg

3.41P

Maximum allowable error at any flow rate is .75%.

Serial No. 162605

| Reading | | CV | | | | |
|-------------|------|-------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | TriCal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 193.73 | 21.3 | 7.60 | | 7.65 | 0.73 | |
| 486.64 | 21.3 | 19.38 | | 19.39 | 0.04 | Average % |
| 729.47 | 21.3 | 29.15 | | 29.06 | -0.33 | 0.15 |

To Check a Tetra Cal
 1.20 - 6.00 Lpm

BP= 748 mm of Hg

| Reading | | CV | | | | |
|-------------|------|------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | Tri Cal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 137.0 | 21.5 | 1.53 | | 1.53 | 0.57 | |
| 341.9 | 21.5 | 3.88 | | 3.86 | -0.42 | Average % |
| 520.6 | 21.5 | 5.93 | | 5.96 | 0.54 | 0.23 |

To Check a Tetra Cal
 0.10 - 1.20 Lpm

BP= 748 mm of Hg

| Reading | | CV | | | | |
|-------------|------|-------|--|-----------|---------|-----------|
| Abs. P | | Qa | | Qa | | |
| Crit. Vent. | Room | Flow | | TriCal | % Error | |
| mm of Hg | TEMP | Lpm | | Indicated | | |
| 219.15 | 21.7 | 0.397 | | 0.399 | 0.50 | |
| 553.82 | 21.7 | 1.049 | | 1.049 | 0.00 | Average % |
| 625.4 | 21.7 | 1.188 | | 1.194 | 0.47 | 0.32 |



REGISTER YOUR PRODUCT TODAY!

Mesa Labs' BGI instruments are precision measuring instruments designed to provide highly-accurate and repeatable measurements. Recognized worldwide for their accuracy, Mesa's products are manufactured and serviced in our ISO 17025-accredited laboratory offering $\pm 0.08\%$ Scope of Accreditation for gas flow by NVLAP of NIST. Harsh environments, accidental damage, environmental factors and simple time and use can, over time, impact the calibration of any instrument. Our NIST-traceable calibrations ensure all of your data readings are accurate and repeatable. Registering your product is the first step in maintaining world-class accuracy for your BGI instrument.

Visit bgi.mesalabs.com to complete the short form that will align your instrument with our product maintenance database. Once complete, you will be able to better manage your BGI fleet by receiving timely reminders at 45 and 15 days prior to the recommended calibration date of your instrument. In addition you will receive vital calibration and firmware/hardware updates. Taking the time to register ensures your instruments warranty claim information is properly documented in Mesa's database.

We recommend annual service and calibration of your BGI instrument as a periodic quality assurance measure, as well as to provide you and your organization with a defensible audit trail of premier quality.

WHAT IS INCLUDED IN FACTORY CALIBRATION?

Maintenance of your BGI instrument is actually a full product refurbishment and calibration performed by the same experienced technicians that build the new BGI instruments. Our ISO 17025/ANSI Z-540 accreditation and documented traceability ensures our accuracy claims are met. A Mesa factory calibration includes:

- Disassembly and inspection of the instrument for wear, defect, contaminants and damage
- Full cleaning, repair and/or replacement of parts as needed
- Battery test/replacement
- Upgraded firmware and hardware
- Temperature and pressure sensor calibration if required
- Multi-point flow calibration with adjustment
- NIST-traceable calibration certificate with As-Found (pre) and As-Left (post) data
- 90-day service warranty

FACTORY CALIBRATION vs. 3RD PARTY CALIBRATION LABORATORIES

Mesa Labs is the only laboratory that can perform a BGI calibration in the US. Third party calibration laboratories cannot adjust your instrument. These other labs can only perform verifications, not calibrations and will only issue a NIST-traceable certificate that identifies the instrument falls within claimed accuracy specifications.

This means that they cannot reset calibration points, perform repairs and maintenance with authorized parts, provide hardware and firmware updates or even check and change batteries.

Please feel free to contact us with any questions or concerns at csbutler@mesalabs.com or at 973-492-8400.

MUESTREADORES DE PARTICULAS HIVOL

1. DESCRIPCIÓN DEL INSTRUMENTO

| | |
|---|-------------------------------------|
| Equipo : Muestreador de partículas | Medición : Flujo Volumétrico |
| Marca : TISCH | Flujo : 1.13 |
| Modelo : HIVOL | Rango : 1.02 to 1.24 m3/min |
| Serie : P9328 | Resolución : 0,056 m3/min |
| Código patrimonial : 60226409-0014 | Exactitud : ± 3.0 % |
| Ubicación : OEFA - CHORRILLOS | Procedencia : USA |

2. FECHA DE VERIFICACIÓN 29/03/2019 Próxima Verificación

3. LUGAR DE VERIFICACIÓN OEFA - CHORRILLOS

4. MÉTODO DE VERIFICACIÓN La verificación se realizó según el procedimiento indicado en el manual de operación del fabricante*.

*OPERATIONS MANUAL - TE-6000 Series, Particulate Matter 10 Microns and less U.S. EPA Federal Reference Number RFPS-0202-141 High Volume Air Sampler

5. TRAZABILIDAD Los resultados de la verificación tienen trazabilidad. Se utilizaron los siguientes patrones:

| Descripción | Marca | Serie / Lote | Nº Certificado |
|---------------------|-------|--------------|----------------|
| VARIFLOW | TISCH | 2974 | 2974 |
| CALIBRADOR DE FLUJO | BGI | 162608 | 162608 |

6. CONDICIONES AMBIENTALES

| Temperatura (°C) | Temperatura (°K) | Presión Barométrica (mmHg) |
|------------------|------------------|----------------------------|
| 22.0 | 295.0 | 757.3 |

7. RESULTADOS

| Calibrador | |
|------------|----------|
| Slope (m) | Int (b) |
| 1.01646 | -0.00760 |

| Pto | Orificio "H2O | Qa m3/min | Muestreador "H2O | Pf mmHg | Po/Pa | Tabla de verificación m3/min | % Diferencia |
|-----|---------------|-----------|------------------|---------|-------|------------------------------|--------------|
| 1 | 3.70 | 1.19 | 12.20 | 22.77 | 0.970 | 1.185 | 0.30 |
| 2 | 3.65 | 1.18 | 14.10 | 26.31 | 0.965 | 1.179 | 0.13 |
| 3 | 3.60 | 1.17 | 16.00 | 29.86 | 0.961 | 1.174 | -0.13 |
| 4 | 3.55 | 1.16 | 18.10 | 33.78 | 0.955 | 1.166 | -0.14 |
| 5 | 3.65 | 1.18 | 20.90 | 39.01 | 0.948 | 1.154 | 2.25 |

% Diferencia: Las directrices de la EPA indican que la diferencia porcentual debe estar dentro de ± 4%. Si es mayor puede deberse a fugas presente durante la verificación y debería ser verificado nuevamente.

| Cálculos |
|---|
| $(Qa) = 1/m * (RAIZ(H2O * (Ta/Pa)) - b)$ $(Po/Pa) = 1 - Pf/Pa$ $\% Diferencia = (Look Up Flow - Qa) / Qa * 100$ |

8. CONCLUSIONES

Los resultados del presente documento son válidos únicamente para el objeto verificado.
El instrumento se encuentra en buen estado y dentro de las tolerancias establecidas por el fabricante.



Personal que realiza la verificación

Pedro Miranda Rodriguez

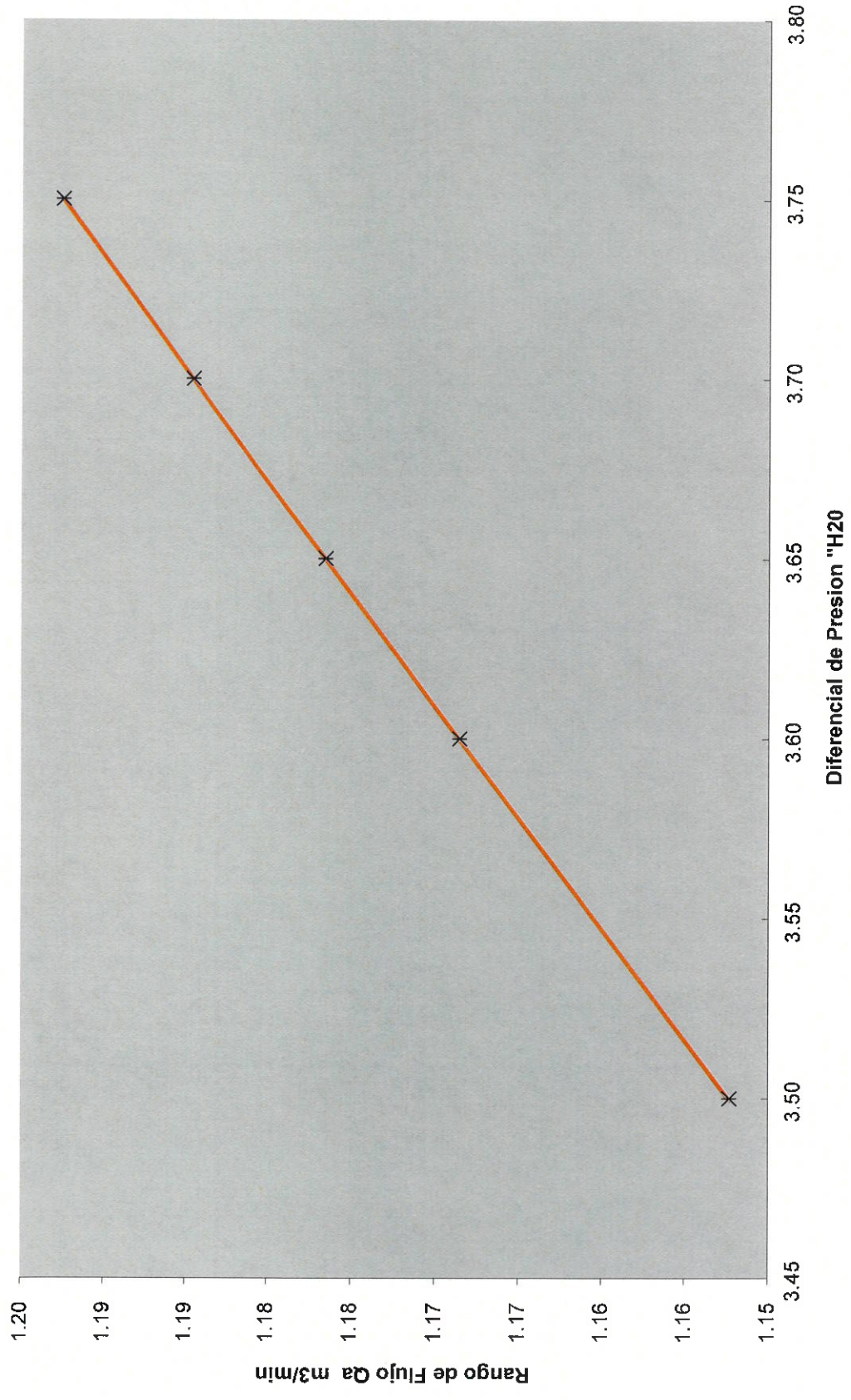


Especialista en operaciones técnicas ambientales

Magaly Mantilla Montenegro

[Handwritten signature]

Curva de Verificación



1. Cliente : ORGANISMO DE EVALUACION Y FISCALIZACION AMBIENTAL - OEFA
2. Dirección : Av. Faustino Sánchez Carrión Nro. 603 Lima - Lima - Jesús María

3. Datos del Instrumento

| | | | |
|-------------------------|-----------------------------|------------------|--------------------------|
| Instrumento de medición | : Muestreador de Partículas | Flujo de Trabajo | : 16,67 L/min |
| Marca | : BGI | Serie | : 2087 |
| Modelo | : PQ 200 | Resolución | : 0,01 L/min |
| Código Interno | : 60226408-0008 | Precisión (±) | : 5% del valor seteado * |

4. Lugar de Calibración : Laboratorio de flujo de aire - Green Group PE S.A.C.

5. Fecha de Calibración : 2018-07-30

6. Condiciones Ambientales :

| | Temperatura (°C) | Humedad relativa (% h.r) | Presión atmosférica (mbar) |
|---------|------------------|--------------------------|----------------------------|
| Inicial | 21,1 | 69,5 | 999,5 |
| Final | 21,0 | 71,2 | 999,3 |

7. Patrones de referencia.

| Patrón | Código Interno | Nº Certificado | F. Vencimiento |
|------------------|----------------|----------------|----------------|
| Medidor de flujo | GGP-05 | 193152 | 2018-10-27 |

8. Método de Calibración.

La calibración se realizó por comparación del instrumento con patrones trazables según "PCG-005 Procedimiento para la Calibración de Medidores de Flujo - Green Group"

9. Resultado de Medición.

| Patrón (L/min) | Instrumento (L/min) | Corrección (L/min) | Incertidumbre (L/min) |
|----------------|---------------------|--------------------|-----------------------|
| 16,701 | 16,67 | 0,031 | 0,046 |

| Verificación | | Patrón | Instrumento | Corrección |
|--------------|----------------|--------|-------------|------------|
| | T (°C) | | 19,9 | 20,1 |
| | Presión (mmHg) | 751,9 | 750 | 1,9 |

10. Observaciones:

- a) Para la calibración se utilizó el impactador PM2.5 con S/N 190514-57
*) Dato tomado del manual del instrumento.

- La Incertidumbre de medición expandida reportada es la incertidumbre de medición estándar multiplicada por el factor de cobertura $K=2$ de modo que la probabilidad de cobertura corresponde aproximadamente a un nivel de confianza del 95%.
- Los resultados emitidos son válidos solo para el instrumento y filtro adecuado, en el momento de la calibración.
- Se recomienda al usuario recalibrar a intervalos adecuados, los cuales deben ser elegidos con base a las características del instrumento
- La incertidumbre declarada en el presente certificado ha sido estimado siguiendo las directrices de: "Guía para la expresión de la incertidumbre de medida" primera edición, septiembre 2008 CEM.
- El certificado de calibración solo puede ser difundido completamente y sin modificaciones, sin firma y sellos carecen de validez.

Fecha de Emisión

2018-07-31



Enzo Barrera Zavala
Jefe de Laboratorio de Calibración
GREEN GROUP PE S.A.C.

1. Cliente : ORGANISMO DE EVALUACION Y FISCALIZACION AMBIENTAL - OEFA
2. Dirección : Av. Faustino Sánchez Carrión Nro. 603 Lima - Lima - Jesús María
3. Datos del Instrumento
- | | | | |
|-------------------------|-----------------------------|------------------|--------------------------|
| Instrumento de medición | : Muestreador de Partículas | Flujo de Trabajo | : 16,67 L/min |
| Marca | : BGI | Serie | : 2085 |
| Modelo | : PQ 200 | Resolución | : 0,01 L/min |
| Código Interno | : 60226408-0006 | Precisión (±) | : 5% del valor seteado * |
4. Lugar de Calibración : Laboratorio de flujo de aire - Green Group PE S.A.C.
5. Fecha de Calibración : 2018-07-30
6. Condiciones Ambientales :

| | Temperatura (°C) | Humedad relativa (% h.r) | Presión atmosférica (mbar) |
|---------|------------------|--------------------------|----------------------------|
| Inicial | 20,3 | 71,8 | 1002,1 |
| Final | 20,4 | 70,2 | 1001,2 |

7. Patrones de referencia.

| Patrón | Código Interno | Nº Certificado | F. Vencimiento |
|------------------|----------------|----------------|----------------|
| Medidor de flujo | GGP-05 | 193152 | 2018-10-27 |

8. Método de Calibración.

La calibración se realizó por comparación del instrumento con patrones trazables según "PCG-005 Procedimiento para la Calibración de Medidores de Flujo - Green Group"

9. Resultado de Medición.

| Patrón (L/min) | Instrumento (L/min) | Corrección (L/min) | Incertidumbre (L/min) |
|----------------|---------------------|--------------------|-----------------------|
| 16,701 | 16,67 | 0,031 | 0,046 |

| Verificación | Patrón | | |
|--------------|----------------|-------------|------------|
| | T (°C) | Instrumento | Corrección |
| | 20,7 | 20,7 | 0,0 |
| | Presión (mmHg) | 753,3 | 753 |
| | | | 0,3 |

10. Observaciones:

- a) Para la calibración se utilizó el impactador PM2.5 con S/N 190514-66
*) Dato tomado del manual del instrumento.

- La Incertidumbre de medición expandida reportada es la incertidumbre de medición estándar multiplicada por el factor de cobertura $k=2$ de modo que la probabilidad de cobertura corresponde aproximadamente a un nivel de confianza del 95%.
- Los resultados emitidos son válidos solo para el instrumento y filtro adecuado, en el momento de la calibración.
- Se recomienda al usuario recalibrar a intervalos adecuados, los cuales deben ser elegidos con base a las características del instrumento
- La incertidumbre declarada en el presente certificado ha sido estimado siguiendo las directrices de: "Guía para la expresión de la incertidumbre de medida" primera edición, septiembre 2008 CEM.
- El certificado de calibración solo puede ser difundido completamente y sin modificaciones, sin firma y sellos carecen de validez.

Fecha de Emisión

2018-07-31



Enzo Barrera Zavala
Jefe de Laboratorio de Calibración
GREEN GROUP PE S.A.C.

ANALIZADORES AUTOMÁTICOS DE GASES

1. DATOS GENERALES

| | | | |
|------------|------------------|------------------------|--------------|
| UBICACIÓN: | CHORRILLOS | NÚMERO DE SERIE: | 1009241444 |
| MARCA: | THERMO | CÓDIGO PATRIMONIAL: | 672202610003 |
| MODELO: | 450i | FECHA DE VERIFICACIÓN: | 28/03/2019 |
| PARÁMETRO: | H ₂ S | | |

2. EQUIPOS DE CALIBRACIÓN

| CALIBRADOR / DILUTOR | MARCA | MODELO | CÓDIGO PRIMONIAL | N° SERIE | FECHA DE CALIBRACIÓN |
|------------------------|-------|--------------|------------------|----------|----------------------|
| | SABIO | 4010 | 67221774-0002 | 13700310 | 8/09/2017 |
| CALIBRADOR DE FLUJO | BIOS | DEFENDER 520 | 67221834-0001 | 120977 | 31/07/2018 |
| GENERADOR DE AIRE ZERO | SABIO | 1001 | 672264040001 | 3101682 | |

3. ESTANDAR DE VERIFICACIÓN

| GAS PATRÓN | | ESTANDAR DE CALIBRACIÓN | | |
|----------------------|------------|--------------------------------------|---------------|-----------|
| MARCA | MESAGAS | TIPO | CONCENTRACIÓN | PRECISIÓN |
| N° DE BALÓN | CC471783 | MONOXIDO DE CARBONO (CO) | 99.74 PPM | ±0.7 |
| FECHA DE CALIBRACIÓN | 18/08/2015 | OXIDO NITRICO (NO) | 98.97 PPM | ±0.9 |
| FECHA DE VENCIMIENTO | 19/08/2023 | DIOXIDO DE AZUFRE (SO ₂) | 99.43 PPM | ±1.1 |

4. PARAMETROS DE OPERACIÓN

| PARÁMETROS | INICIAL | FINAL | RANGO |
|-------------------------|---------|--------|--------------------|
| 1 RANGO (ppb) | 500 | 500 | (0 - 20) ppm |
| 2 AVERAGE TIME (SEC) | 60 | 60 | (0 a 300) S |
| 3 SO ₂ BKG | 9.8 | 11.2 | - |
| 4 SO ₂ COEF | 0.776 | 0.77 | - |
| 5 H ₂ S COEF | 0.929 | 0.929 | |
| 6 INTERNAL TEMP (°C) | 31 | 32.6 | (8 a 47) °C |
| 7 CHAMBER TEMP (°C) | 45 | 44.8 | (47 a 51) °C |
| 8 CONVER TEM (°C) | 326.5 | 325.5 | |
| 9 PRESS (mmHg) | 762.8 | 763 | (300 a 800) mmHg |
| 10 FLOW (L/min) | 0.95 | 0.95 | (0.3 a 1) L/min |
| 11 LAMP INTENS (%) | 83 | 84 | (40 a 100) % |
| 12 LAMP VOLTAGE (V) | 845 | 846 | (600 a 1200) volt |
| 13 PMT SUPPLY (V) | -680.4 | -681.3 | (-400 a -900) volt |

5. VERIFICACIÓN Y AJUSTE DE ZERO / SPAN

| | PATRÓN | LECTURA INICIAL | LECTURA FINAL | UNIDADES |
|------|--------|-----------------|---------------|----------|
| ZERO | 3.00 | 3.30 | 3.10 | ppb |
| SPAN | 400.00 | 400.00 | 400.00 | ppb |
| ZERO | 3.00 | 3.30 | 3.10 | ppb |

6. RESULTADOS DE LA MEDICIÓN


| % | CONCENTRACIÓN GENERADA | LECTURA DEL ANALIZADOR | ERROR (ppb) | (ERROR < ± 2%) ² |
|----|------------------------|------------------------|-------------|-----------------------------|
| 0' | 3.00 | 3.04 | 0.04 | 1.33 |
| 20 | 100.00 | 101.80 | 1.80 | 1.80 |
| 40 | 200.00 | 203.90 | 3.90 | 1.95 |
| 60 | 300.00 | 304.50 | 4.50 | 1.50 |
| 80 | 400.00 | 406.70 | 6.70 | 1.68 |

¹QA Handbook Volume II, Appendix K, Measurement Quality Objectives and Validation Templates, Revision N°0 Date: 01/17.

²QA Handbook Volume II, Appendix D, Measurement Quality Objectives and Validation Templates, Revision N°1 Date: 03/17.

7. CONCLUSIONES

De acuerdo con los resultados obtenidos de la calibración multipunto, el equipo analizador de gases ambientales se encuentra dentro del error aceptable.


 Personal que realiza la verificación
 Pedro Miranda Rodriguez


 Especialista en operaciones técnicas ambientales
 Magaly Mantilla Montenegro

ANEXO N° 5



Organismo
de Evaluación
y Fiscalización
Ambiental

Cadenas de custodia



CADENA DE CUSTODIA CALIDAD DE AIRE C19 10/130

CERTIMIN S.A. V.O.B. FECHA
 RECEPCIÓN 1 : C19 10/130
 RECEPCIÓN 2 : -1-1-

[Signature]

P19-3026
 A301200.019

DATOS GENERALES

Organismo de Evaluación y Fiscalización Ambiental
 Av. Faustino Sánchez Carrión N° 603, 607, 615 - Jesús María

Persona de contacto: Mariela Alata / Cindy Alfaro
 Teléfono/Anejo: 936340841 / 999883684

Correo Electrónico: mariela.alata.alvarez@gmail.com / cindy.alfaro.goticohen@gmail.com

Referencia: -

DATOS DEL MUESTREO

CUC: 0002-4-2019-401 UBIGACION: Distrito: Ventanilla y Mi Perú
 RS N°: 820-2019 Provincia: Constitucional del Callao Departamento: -

DATOS DEL ENVIO

Envío por: Fecha: Hora:
 Medio de Envío: Aerolínea Agencia
 T. Privado Otro

| CÓDIGO DE LABORATORIO DE MUESTREO | MUESTREO | | FINAL | | PARÁMETROS (Marcar con "X") | CÓDIGO DE FILTRO |
|-----------------------------------|------------|------------------|------------|-------|-----------------------------|------------------|
| | INICIO | FECHA (DD/MM/AA) | HORA | HORA | | |
| CA-VMP-1 | 8/04/2019 | 11:55 | 9/04/2019 | 11:55 | PM 2.5 (1) | PM 10 |
| CA-VMP-1 | 11/04/2019 | 10:39 | 12/04/2019 | 10:39 | | PM 2.5 |
| CA-VMP-1 | 16/04/2019 | 11:10 | 17/04/2019 | 11:10 | | OTROS |
| CA-VMP-1 | 24/04/2019 | 11:13 | 25/04/2019 | 11:03 | | |
| CA-VMP-1 | 25/04/2019 | 11:15 | 26/04/2019 | 11:15 | | |
| CA-VMP-1 | 26/04/2019 | 12:04 | 27/04/2019 | 12:04 | | |
| CA-VMP-2 | 8/04/2019 | 12:30 | 9/04/2019 | 12:30 | | |
| CA-VMP-2 | 11/04/2019 | 10:53 | 12/04/2019 | 10:53 | | |
| CA-VMP-2 | 16/04/2019 | 11:25 | 17/04/2019 | 11:25 | | |
| CA-VMP-2 | 24/04/2019 | 11:28 | 25/04/2019 | 11:28 | | |
| CA-VMP-2 | 25/04/2019 | 11:38 | 26/04/2019 | 11:38 | | |
| CA-VMP-2 | 26/04/2019 | 12:38 | 27/04/2019 | 12:38 | | |

CERTIMIN S.A.
30 ABR 2019
Recepcion Ambiental

OBSERVACIONES GENERALES

(1) Bajo volumen

CONDICIONES DE RECEPCIÓN DE MUESTRAS PARA LAS SOLUCIONES CAPTADORAS

Envases adecuados SI NO
 Con Ice pack
 Dentro del tiempo de vida útil

PARÁMETROS METEOROLÓGICOS (Marcar con "X")

Humedad Velocidad/Dirección del Viento
 Temperatura Radiación
 Presión Precipitación

PARÁMETROS (Marcar con "X")

PM 10 PM 2.5 OTROS

PARA SER LLENADO POR EL ÁREA DE RECEPCIÓN DEL LABORATORIO

Fecha de Recepción: _____
 Hora de Recepción: _____
 Recibido por: _____
 Firma: _____

OBSERVACIONES

CST no 6940118

SSD no 162-19



CADENA DE CUSTODIA - CALIDAD DE AIRE

CERTIMIN S.A. VºBº FECHA
RECEPCIÓN 1 : 19/04/2019
RECEPCIÓN 2 : 17/04/2019

[Signature]

P19.3022
D 321201.019

| | | | |
|---|---|---|---|
| DATOS GENERALES Organismo de Evaluación y Fiscalización Ambiental Av. Faustino Sánchez Carrón N° 603, 607, 615 - Jesús María Mariella Alata / Cindy Alfaro 936340841 / 999983684 | | CUC: 0002-4-2019-401 RS N°: 820-2019 | DATOS DEL ENVIO Envío por: _____ Fecha: _____ Hora: _____ Medio de Envío: <input type="checkbox"/> Aerolínea <input type="checkbox"/> Agencia <input type="checkbox"/> <input type="checkbox"/> T. Privado <input type="checkbox"/> Otro |
| Nombre o Razón social: Dirección: Persona de contacto: Teléfono/Arexo Correo Electrónico Referencia | Distrito: Ventanilla y M. Perú Provincia: Constitucional del Callao Departamento: | | |

| CÓDIGO DE LABORATORIO | CÓDIGO DEL PUNTO DE MUESTREO | INICIO | | FINAL | | PM 10 (1) | Metales (1) | | | | | | | | | CÓDIGO DE FILTRO | | |
|-----------------------|------------------------------|------------------|-------|------------------|-------|-----------|-------------|--|--|--|--|--|--|--|--|------------------|--------|-------|
| | | FECHA (DD/MM/AA) | HORA | FECHA (DD/MM/AA) | HORA | | | | | | | | | | | PM 10 | PM 2.5 | OTROS |
| | CA-VMP-1 | 8/04/2019 | 11:55 | 9/04/2019 | 11:55 | X | X | | | | | | | | | | | |
| | CA-VMP-1 | 11/04/2019 | 10:39 | 12/04/2019 | 10:39 | X | X | | | | | | | | | | | |
| | CA-VMP-1 | 16/04/2019 | 11:10 | 17/04/2019 | 11:14 | X | X | | | | | | | | | | | |
| | CA-VMP-1 | 24/04/2019 | 11:13 | 25/04/2019 | 11:03 | X | X | | | | | | | | | | | |
| | CA-VMP-1 | 25/04/2019 | 11:15 | 26/04/2019 | 11:38 | X | X | | | | | | | | | | | |
| | CA-VMP-1 | 26/04/2019 | 12:04 | 27/04/2019 | 12:30 | X | X | | | | | | | | | | | |
| | CA-VMP-2 | 8/04/2019 | 12:30 | 9/04/2019 | 12:30 | X | X | | | | | | | | | | | |
| | CA-VMP-2 | 11/04/2019 | 10:53 | 12/04/2019 | 10:53 | X | X | | | | | | | | | | | |
| | CA-VMP-2 | 16/04/2019 | 11:25 | 17/04/2019 | 11:30 | X | X | | | | | | | | | | | |
| | CA-VMP-2 | 24/04/2019 | 11:28 | 25/04/2019 | 11:28 | X | X | | | | | | | | | | | |
| | CA-VMP-2 | 26/04/2019 | 11:38 | 26/04/2019 | 12:18 | X | X | | | | | | | | | | | |
| | CA-VMP-2 | 26/04/2019 | 12:38 | 26/04/2019 | 17:38 | X | X | | | | | | | | | | | |

CERTIMIN S.A.
30 ABR 2019
Recepcion Ambiental

Se solicita devolver los filtros evaluados luego de emitida la conformidad

| | | | | | |
|---|---|---|--|----------------------|--|
| CONDICIONES DE RECEPCIÓN DE MUESTRAS PARA LAS SOLUCIONES CAPTADORAS Envases adecuados <input type="checkbox"/> SI <input type="checkbox"/> NO Con Ice pack <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Dentro del tiempo de vida útil <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | CONFORMIDAD DE RECEPCIÓN DE MUESTRAS Fecha de Recepción: _____ Hora de Recepción: _____ Recibido por: _____ Firma: _____ | | OBSERVACIONES | |
| RESPONSABLE 1 Cindy Alfaro FIRMA: <i>[Signature]</i> | PARA SER LLENADO POR EL ÁREA DE RECEPCIÓN DEL LABORATORIO | | | | |
| RESPONSABLE 2 FIRMA: _____ | | | | | |
| RESPONSABLE DE GRUPO Mariella Alata FIRMA: <i>[Signature]</i> | | | | | |

| | | | |
|--|--------------------------|--------------------------------|--------------------------|
| PARÁMETROS METEOROLÓGICOS (Marcar con "X") | | | |
| Humedad | <input type="checkbox"/> | Velocidad/Dirección del Viento | <input type="checkbox"/> |
| Temperatura | <input type="checkbox"/> | Radiación | <input type="checkbox"/> |
| Presión | <input type="checkbox"/> | Precipitación | <input type="checkbox"/> |

CA MS 69Y 01 18

SSP N° 562-19



CADENA DE CUSTODIA - CALIDAD DE AIRE

RECIBO RECEPCION 1 : 17/04/2019
RECIBO RECEPCION 2 : 18/04/2019

RECIBO RECEPCION 3 : 19/04/2019

RECIBO RECEPCION 4 : 20/04/2019

RECIBO RECEPCION 5 : 21/04/2019

RECIBO RECEPCION 6 : 22/04/2019

RECIBO RECEPCION 7 : 23/04/2019

RECIBO RECEPCION 8 : 24/04/2019

RECIBO RECEPCION 9 : 25/04/2019

RECIBO RECEPCION 10 : 26/04/2019

DATOS GENERALES

Organismo de Evaluación y Fiscalización Ambiental
 Av. Faustino Sanchez Carrion N. 603, 607, 615 - Jesus Maria
 Marelia Atala / Cindy Alfaro
 996340841 / 999836384

Nombre o Razón social: _____
 Dirección: _____
 Persona de contacto: _____
 Teléfono/Anejo: _____
 Correo Electrónico: marliella.atala.alvarez@gmail.com / cindy.alfaro.gorcochea@gmail.com
 Referencia: _____

DATOS DEL MUESTREO

Organismo de Evaluación y Fiscalización Ambiental
 Distrito: Ventanilla y Mi Perú
 Provincia: Constitucional del Callao
 Departamento: _____

UBICACIÓN: _____
 CUC: 0002-4-2019-401
 RS N°: 820-2019

DATOS DEL ENVIO

Envío por: _____ Fecha: _____ Hora: _____
 Medio de Envío: _____
 Aéreo: T. Privado: Otro:

PÁGINA 2 de 2

| CÓDIGO DE LABORATORIO DE MUESTREO | MUESTREO | | CÓDIGO DE FILTRO | | | | | | |
|-----------------------------------|------------------|-------|------------------|-------|-----------|-------------|-----------|--------|-------|
| | INICIO | FINAL | | | | | | | |
| | FECHA (DD/MM/AA) | HORA | FECHA (DD/MM/AA) | HORA | PM 10 (1) | Metales (1) | PM 10 | PM 2,5 | OTROS |
| CA-VMP-6 | 8/04/2019 | 10:58 | 9/04/2019 | 10:58 | X | X | 0201A R19 | - | - |
| CA-VMP-6 | 11/04/2019 | 09:54 | 12/04/2019 | 10:04 | X | X | 0205A R19 | - | - |
| CA-VMP-6 | 16/04/2019 | 10:36 | 17/04/2019 | 10:40 | X | X | 0209A R19 | - | - |
| CA-VMP-6 | 24/04/2019 | 10:39 | 25/04/2019 | 10:19 | X | X | 0213A R19 | - | - |
| CA-VMP-6 | 25/04/2019 | 10:30 | 26/04/2019 | 10:32 | X | X | 0217A R19 | - | - |
| CA-VMP-6 | 26/04/2019 | 10:39 | 27/04/2019 | 10:48 | X | X | 0221A R19 | - | - |
| CA-VMP-7 | 8/04/2019 | 11:23 | 9/04/2019 | 11:23 | X | X | 0202A R19 | - | - |
| CA-VMP-7 | 11/04/2019 | 10:15 | 12/04/2019 | 10:22 | X | X | 0206A R19 | - | - |
| CA-VMP-7 | 16/04/2019 | 10:55 | 17/04/2019 | 10:58 | X | X | 0210A R19 | - | - |
| CA-VMP-7 | 24/04/2019 | 11:00 | 25/04/2019 | 10:46 | X | X | 0214A R19 | - | - |
| CA-VMP-7 | 25/04/2019 | 10:55 | 26/04/2019 | 11:11 | X | X | 0218A R19 | - | - |
| CA-VMP-7 | 26/04/2019 | 11:32 | 27/04/2019 | 11:18 | X | X | 0222A R19 | - | - |

CERTIMIN S.A.
30 ABR 2019
Recepcion Ambiental

Se solicita devolver los filtros evaluados luego de emitida la conformidad

(1) Alto volumen.

PARÁMETROS METEOROLÓGICOS
(Marcar con "X")

Humedad Velocidad/Dirección del Viento
 Temperatura Radiación
 Presión Precipitación

RESPONSABLE 1
 Cindy Alfaro
 FIRMA:

CONDICIONES DE RECEPCIÓN DE MUESTRAS PARA LAS SOLUCIONES CAPTADORAS

Envases adecuados SI NO
 Con Ice pack
 Dentro del tiempo de vida útil

RESPONSABLE 2
 Marelia Atala
 FIRMA:

PARA SER LLENADO POR EL ÁREA DE RECEPCIÓN DEL LABORATORIO

CONFORMIDAD DE RECEPCIÓN DE MUESTRAS

Fecha de Recepción: _____
 Hora de Recepción: _____
 Recibido por: _____
 Firma: _____

OBSERVACIONES

COT NO 694 01 18

SSO N° 162-19

P19-3028
AGC1202.019

ANEXO N° 6



Organismo
de Evaluación
y Fiscalización
Ambiental

Informes de ensayo de laboratorio



INFORME DE ENSAYO N° ABR1200.R19

| | |
|--|---|
| SOLICITANTE : | ORGANISMO DE EVALUACIÓN Y FISCALIZACIÓN AMBIENTAL |
| DOMICILIO LEGAL : | Av. Faustino Sánchez Carrión N° 603 Jesús María, Lima |
| SOLICITADO POR : | Dirección de Evaluación Ambiental |
| SOLICITUD DE SERVICIO AMBIENTAL: | SSA N° 162-19 |
| REFERENCIA : | CUC: 0002-4-2019-401 RS N°: 820-2019 Ventanilla y Mi Perú / Callao Monitoreo Calidad de Aire |
| FECHA DE MUESTREO : | 2019/04/08 al 2019/04/27 |
| MUESTRA TOMADA POR : | EL CLIENTE |
| PROTOCOLO : | -- |
| TIPO DE MUESTRA: | Filtro |
| NÚMERO DE MUESTRAS : | 12 |
| PRESENTACIÓN DE LAS MUESTRAS : | Filtro de Teflón de 46.2 mm de diámetro. |
| CONDICIÓN DE LAS MUESTRAS : RECEPCIONADAS | Muestras en buenas condiciones para los análisis solicitados. |
| FECHA DE RECEPCIÓN : | martes, 30 de Abril de 2019 |
| IDENTIFICACIÓN DE LAS MUESTRAS : | Según se indica |
| FECHA DE EJECUCIÓN DE ENSAYO : | 2019-04-30 al 2019-05-06 |
| FECHA DE REPORTE : | lunes, 06 de Mayo de 2019 |
| PERIODO DE CUSTODIA : | Hasta un mes. De acuerdo a las recomendaciones de la metodología o norma empleada. |

EDGAR NINA VELÁSQUEZ
Jefe Ambiental
CQP. 729

Lima, 6 de Mayo de 2019

"Prohibida la reproducción total o parcial de este informe, sin autorización escrita de CERTIMIN S.A."
"Los resultados de los ensayos no deben ser utilizados como una certificación de conformidad con normas de producto o como certificado del sistema de calidad de la entidad que lo produce".
Los resultados corresponden a las muestras indicadas.
El laboratorio no es responsable de la información proporcionada por el cliente.
Los resultados se aplican a la muestra cómo se recibió por parte del cliente.



INFORME DE ENSAYO
N° ABR1200.R19

RESULTADOS

| Muestras | | Elementos | | | | | | |
|----------|--|---|----------------------------|--------------------------------------|---|---------------------------------------|---|--|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MON0000 Fecha Monitoreo | MON0000 Tipo Muestra | MA1000 Codigo de Filtro* PM2.5 | MA1343 Peso. Inicial* PM2.5 ug | MA1343 Peso. Final* PM2.5 ug | MA1343 Determinación de Peso: PM2.5_BV µg/Muestra 60 20 | Incertidumbre Determinación de Peso: PM2.5_BV µg/Muestra |
| 1 | CA-VMP-1 | Inicio: 2019-04-08 11:55 Fin: 2019-04-09 11:55 | Filtro | 0207T.R19 | 136159 | 137235 | 1076 | 16 |
| 2 | CA-VMP-1 | Inicio: 2019-04-11 10:39 Fin: 2019-04-12 10:39 | Filtro | 0209T.R19 | 136682 | 137502 | 820 | 16 |
| 3 | CA-VMP-1 | Inicio: 2019-04-16 11:10 Fin: 2019-04-17 11:10 | Filtro | 0211T.R19 | 138259 | 139122 | 863 | 16 |
| 4 | CA-VMP-1 | Inicio: 2019-04-24 11:13 Fin: 2019-04-25 11:03 | Filtro | 0213T.R19 | 135976 | 136767 | 791 | 16 |
| 5 | CA-VMP-1 | Inicio: 2019-04-25 11:15 Fin: 2019-04-26 11:15 | Filtro | 0215T.R19 | 136847 | 137775 | 928 | 16 |
| 6 | CA-VMP-1 | Inicio: 2019-04-26 12:04 Fin: 2019-04-27 12:04 | Filtro | 0217T.R19 | 138805 | 139059 | 254 | 15 |
| 7 | CA-VMP-2 | Inicio: 2019-04-08 12:30 Fin: 2019-04-09 12:30 | Filtro | 0208T.R19 | 135028 | 136141 | 1113 | 16 |
| 8 | CA-VMP-2 | Inicio: 2019-04-11 10:53 Fin: 2019-04-12 10:53 | Filtro | 0210T.R19 | 136006 | 136764 | 758 | 16 |
| 9 | CA-VMP-2 | Inicio: 2019-04-16 11:25 Fin: 2019-04-17 11:25 | Filtro | 0212T.R19 | 141194 | 141998 | 804 | 16 |
| 10 | CA-VMP-2 | Inicio: 2019-04-24 11:28 Fin: 2019-04-25 11:28 | Filtro | 0214T.R19 | 137865 | 138676 | 811 | 16 |
| 11 | CA-VMP-2 | Inicio: 2019-04-25 11:38 Fin: 2019-04-26 11:38 | Filtro | 0216T.R19 | 138792 | 139681 | 889 | 16 |
| 12 | CA-VMP-2 | Inicio: 2019-04-26 12:38 Fin: 2019-04-27 12:38 | Filtro | 0218T.R19 | 135742 | 136612 | 870 | 16 |



INFORME DE ENSAYO
N° ABR1200.R19

CONTROL DE CALIDAD

| Muestras QC | | Elementos | | |
|-------------|---|--------------------------------|------------------------------|---|
| N° | Codigo de Servicio Elemento Unidad Limite de Cuantificación LC | MA1343 Peso. Inicial* ug | MA1343 Peso. Final* ug | MA1343 Determinación de Peso: PM2.5_BV µg/Muestra 60 |
| 1 | CA-VMP-2 (Original) | 141194 | 141998 | 804 |
| 2 | CA-VMP-2 (Dup) | 141194 | 141992 | 798 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



METODOS DE ENSAYO Y CODIGOS DE SERVICIO

| N° | Descripción | | | |
|----|---------------------------------|--|----------|---|
| | Analito | Denominación | Cod.Serv | (1) Norma o Referencia |
| 1 | Determinación de Peso: PM2.5_BV | Determinación de Peso: Filtro PM2.5_Bajo Volumen | MA1343 | EPA CFR 40 Part 50 Appendix L (Validado). 2017. Reference Method for the Determination of the Fine Particulate Matter as PM 2.5 in the Atmosphere.Excepto Muestreo. |

(*) Los métodos indicados no han sido acreditados por el INACAL-DA.

- (1) SMEWW: Standard Methods for the Examination of Water and Wastewater.
 APHA : American Public Health Association.
 AWWA: American Water Works Association.
 WEF : Water Environment Federation.
 EPA : Environmental Protection Agency.
 ASTM: American Society for Testing and Materials.
 ISO: International Organization for Standardization.
 NTP: Norma Técnica Peruana.
 NIOSH: The National Institute for Occupational Safety and Health.

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



INFORME DE ENSAYO N° ABR1201.R19

| | |
|--|---|
| SOLICITANTE : | ORGANISMO DE EVALUACIÓN Y FISCALIZACIÓN AMBIENTAL |
| DOMICILIO LEGAL : | Av. Faustino Sánchez Carrión N° 603 Jesús María, Lima |
| SOLICITADO POR : | Dirección de Evaluación Ambiental |
| SOLICITUD DE SERVICIO AMBIENTAL: | SSA N° 162-19 |
| REFERENCIA : | CUC: 0002-4-2019-401 RS N°: 820-2019 Ventanilla y Mi Perú / Callao Monitoreo Calidad de Aire |
| FECHA DE MUESTREO : | 2019/04/08 al 2019/04/26 |
| MUESTRA TOMADA POR : | EL CLIENTE |
| PROTOCOLO : | -- |
| TIPO DE MUESTRA: | Filtro |
| NÚMERO DE MUESTRAS : | 12 |
| PRESENTACIÓN DE LAS MUESTRAS : | Filtro de Cuarzo de 8"x10" |
| CONDICIÓN DE LAS MUESTRAS : RECEPCIONADAS | Muestras en buenas condiciones para los análisis solicitados. |
| FECHA DE RECEPCIÓN : | martes, 30 de Abril de 2019 |
| IDENTIFICACIÓN DE LAS MUESTRAS : | Según se indica |
| FECHA DE EJECUCIÓN DE ENSAYO : | 2019-04-30 al 2019-05-06 |
| FECHA DE REPORTE : | lunes, 06 de Mayo de 2019 |
| PERIODO DE CUSTODIA : | Hasta un mes. De acuerdo a las recomendaciones de la metodología o norma empleada. |

EDGAR NINA VELÁSQUEZ
Jefe Ambiental
CQP. 729

Lima, 6 de Mayo de 2019

"Prohibida la reproducción total o parcial de este informe, sin autorización escrita de CERTIMIN S.A."
"Los resultados de los ensayos no deben ser utilizados como una certificación de conformidad con normas de producto o como certificado del sistema de calidad de la entidad que lo produce".
Los resultados corresponden a las muestras indicadas.
El laboratorio no es responsable de la información proporcionada por el cliente.
Los resultados se aplican a la muestra cómo se recibió por parte del cliente.



**INFORME DE ENSAYO
N° ABR1201.R19**

RESULTADOS

| Muestras | | Elementos | | | | | | |
|----------|--|---|----------------------------|-------------------------------------|---------------------------------------|-------------------------------------|--|---|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MON0000 Fecha Monitoreo | MON0000 Tipo Muestra | MA1000 Codigo de Filtro* PM10 | MA0216 Peso. Inicial* PM10 g | MA0216 Peso. Final* PM10 g | MA0216 Determinación de Peso: PM10_AV µg/Muestra 5582 1229 | Incertidumbre Determinación de Peso: PM10_AV µg/Muestra |
| 1 | CA-VMP-1 | Inicio: 2019-04-08 11:55 Fin: 2019-04-09 11:55 | Filtro | 0203A.R19 | 3.5088 | 3.6909 | 182100 | 2966 |
| 2 | CA-VMP-1 | Inicio: 2019-04-11 10:39 Fin: 2019-04-12 10:39 | Filtro | 0207A.R19 | 3.4780 | 3.6351 | 157100 | 2861 |
| 3 | CA-VMP-1 | Inicio: 2019-04-16 11:10 Fin: 2019-04-17 11:14 | Filtro | 0211A.R19 | 3.4555 | 3.6015 | 146000 | 2818 |
| 4 | CA-VMP-1 | Inicio: 2019-04-24 11:13 Fin: 2019-04-25 11:03 | Filtro | 0215A.R19 | 3.4777 | 3.6023 | 124600 | 2739 |
| 5 | CA-VMP-1 | Inicio: 2019-04-25 11:15 Fin: 2019-04-26 11:38 | Filtro | 0219A.R19 | 3.4565 | 3.5909 | 134400 | 2774 |
| 6 | CA-VMP-1 | Inicio: 2019-04-26 12:04 Fin: 2019-04-27 12:30 | Filtro | 0223A.R19 | 3.4691 | 3.6084 | 139300 | 2792 |
| 7 | CA-VMP-2 | Inicio: 2019-04-08 12:30 Fin: 2019-04-09 12:30 | Filtro | 0204A.R19 | 3.5004 | 3.7079 | 207500 | 3081 |
| 8 | CA-VMP-2 | Inicio: 2019-04-11 10:53 Fin: 2019-04-12 10:53 | Filtro | 0208A.R19 | 3.4526 | 3.6237 | 171100 | 2919 |
| 9 | CA-VMP-2 | Inicio: 2019-04-16 11:25 Fin: 2019-04-17 11:30 | Filtro | 0212A.R19 | 3.4491 | 3.6100 | 160900 | 2877 |
| 10 | CA-VMP-2 | Inicio: 2019-04-24 11:28 Fin: 2019-04-25 11:28 | Filtro | 0216A.R19 | 3.4696 | 3.6094 | 139800 | 2794 |
| 11 | CA-VMP-2 | Inicio: 2019-04-25 11:38 Fin: 2019-04-26 12:18 | Filtro | 0220A.R19 | 3.5079 | 3.6566 | 148700 | 2828 |
| 12 | CA-VMP-2 | Inicio: 2019-04-26 12:38 Fin: 2019-04-26 17:38 | Filtro | 0224A.R19 | 3.4797 | 3.5117 | 32000 | 2324 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE.



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1201.R19

| Muestras | | Elementos | | | | | | | | | | | |
|----------|--|----------------------------|------------------|-------------------------------|------------------|-------------------------------|------------------|----------------------------|------------------|------------------------------|------------------|------------------------------|---------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre |
| | | Ag* Plata µg/Muestra | Ag µg/Muestra | Al* Aluminio µg/Muestra | Al µg/Muestra | As* Arsenico µg/Muestra | As µg/Muestra | Ba* Bario µg/Muestra | Ba µg/Muestra | Be* Berilio µg/Muestra | Be µg/Muestra | Bi* Bismuto µg/Muestra | |
| | | 1 0.3 | | 20 7 | | 9 3 | | 1 0.3 | | 1 0.3 | | 1 0.3 | |
| 1 | CA-VMP-1 | <1 | -- | 991 | 173 | <9 | -- | 23 | 0.5 | <1 | -- | <350 | |
| 2 | CA-VMP-1 | <1 | -- | 1260 | 227 | <9 | -- | 29 | 1 | <1 | -- | <350 | |
| 3 | CA-VMP-1 | <1 | -- | 1154 | 206 | <9 | -- | 25 | 1 | <1 | -- | <350 | |
| 4 | CA-VMP-1 | <1 | -- | 922 | 160 | <9 | -- | 24 | 1 | <1 | -- | <350 | |
| 5 | CA-VMP-1 | <1 | -- | 817 | 140 | <9 | -- | 22 | 0.5 | <1 | -- | <350 | |
| 6 | CA-VMP-1 | <1 | -- | 918 | 159 | <9 | -- | 23 | 0.5 | <1 | -- | <350 | |
| 7 | CA-VMP-2 | <1 | -- | 1351 | 246 | <9 | -- | 35 | 1 | <1 | -- | <350 | |
| 8 | CA-VMP-2 | <1 | -- | 1644 | 310 | <9 | -- | 38 | 1 | <1 | -- | <350 | |
| 9 | CA-VMP-2 | <1 | -- | 1189 | 213 | <9 | -- | 28 | 1 | <1 | -- | <350 | |
| 10 | CA-VMP-2 | <1 | -- | 1199 | 215 | <9 | -- | 31 | 1 | <1 | -- | <350 | |
| 11 | CA-VMP-2 | <1 | -- | 1298 | 235 | <9 | -- | 32 | 1 | <1 | -- | <350 | |
| 12 | CA-VMP-2 | <1 | -- | 345 | 56 | <9 | -- | 7 | 0.15 | <1 | -- | <350 | |

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1201.R19

| Muestras | | Elementos | | | | | | | | | | |
|----------|--|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre |
| | | Bi | B* | B | Ca* | Ca | Cd* | Cd | Co* | Co | Cr* | Cr |
| | | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra |
| | | | 10 | | 40 | | 2 | | 6 | | 4 | |
| | | | 3 | | 13 | | 1 | | 2 | | 1 | |
| 1 | CA-VMP-1 | -- | 236 | 51 | 4230 | 196 | 5 | 0.11 | <6 | -- | 32 | 5 |
| 2 | CA-VMP-1 | -- | 55 | 12 | 4297 | 199 | 6 | 0.13 | <6 | -- | 42 | 6 |
| 3 | CA-VMP-1 | -- | 58 | 12 | 3764 | 178 | 3 | 0.06 | <6 | -- | 38 | 6 |
| 4 | CA-VMP-1 | -- | 29 | 6 | 3747 | 177 | 8 | 0.17 | <6 | -- | 32 | 5 |
| 5 | CA-VMP-1 | -- | 11 | 2 | 3481 | 166 | 6 | 0.13 | <6 | -- | 53 | 8 |
| 6 | CA-VMP-1 | -- | 38 | 8 | 3429 | 164 | 12 | 0.26 | <6 | -- | 63 | 10 |
| 7 | CA-VMP-2 | -- | 120 | 26 | 5639 | 248 | 12 | 0.26 | <6 | -- | 48 | 7 |
| 8 | CA-VMP-2 | -- | 350 | 76 | 5658 | 249 | 22 | 0.47 | <6 | -- | 49 | 8 |
| 9 | CA-VMP-2 | -- | 126 | 27 | 4103 | 191 | 19 | 0.41 | <6 | -- | 37 | 6 |
| 10 | CA-VMP-2 | -- | 25 | 5 | 3850 | 181 | 13 | 0.28 | <6 | -- | 35 | 5 |
| 11 | CA-VMP-2 | -- | 209 | 45 | 4009 | 188 | 41 | 1 | <6 | -- | 31 | 5 |
| 12 | CA-VMP-2 | -- | 23 | 5 | 1150 | 59 | 6 | 0.13 | <6 | -- | 28 | 4 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1201.R19

| Muestras | | Elementos | | | | | | | | | | | |
|----------|--|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre |
| | | Cu* | Cu | Fe* | Fe | K* | K | Hg* | Hg | Li* | Li | Mg* | Mg |
| | | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra |
| | | 5 | | 15 | | 75 | | 20 | | 2 | | 9 | |
| | | 2 | | 5 | | 25 | | 6.7 | | 0.7 | | 3 | |
| 1 | CA-VMP-1 | 255 | 25 | 2210 | 282 | 789 | 96 | <20 | -- | <2 | -- | 1720 | |
| 2 | CA-VMP-1 | 316 | 31 | 2405 | 311 | 831 | 101 | <20 | -- | <2 | -- | 1705 | |
| 3 | CA-VMP-1 | 280 | 27 | 2066 | 260 | 836 | 101 | <20 | -- | <2 | -- | 1817 | |
| 4 | CA-VMP-1 | 376 | 37 | 1792 | 220 | 583 | 72 | <20 | -- | <2 | -- | 1167 | |
| 5 | CA-VMP-1 | 243 | 23 | 1761 | 216 | 661 | 81 | <20 | -- | <2 | -- | 1265 | |
| 6 | CA-VMP-1 | 282 | 27 | 2013 | 252 | 672 | 83 | <20 | -- | <2 | -- | 1372 | |
| 7 | CA-VMP-2 | 299 | 29 | 2847 | 382 | 865 | 105 | <20 | -- | <2 | -- | 2048 | |
| 8 | CA-VMP-2 | 386 | 38 | 3054 | 417 | 918 | 111 | <20 | -- | <2 | -- | 2034 | |
| 9 | CA-VMP-2 | 301 | 29 | 2145 | 272 | 834 | 101 | <20 | -- | <2 | -- | 1778 | |
| 10 | CA-VMP-2 | 216 | 21 | 2292 | 294 | 594 | 74 | <20 | -- | <2 | -- | 1283 | |
| 11 | CA-VMP-2 | 286 | 28 | 2352 | 303 | 654 | 81 | <20 | -- | <2 | -- | 1513 | |
| 12 | CA-VMP-2 | 70 | 7 | 687 | 77 | 177 | 23 | <20 | -- | <2 | -- | 314 | |

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO N° ABR1201.R19

| Muestras | | Elementos | | | | | | | | | | |
|----------|--|---------------|-------------------------------------|---------------|-----------------------------------|---------------|---------------------------------|---------------|----------------------------------|---------------|-------------------------------------|---------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre |
| | | Mg | Mn* | Mn | Mo* | Mo | Na* | Na | Ni* | Ni | P* | P |
| | | µg/Muestra | Manganeso µg/Muestra 2 0.7 | µg/Muestra | Molibdeno µg/Muestra 3 1 | µg/Muestra | Sodio µg/Muestra 8 2.7 | µg/Muestra | Niquel µg/Muestra 5 1.7 | µg/Muestra | Fósforo µg/Muestra 35 11.7 | µg/Muestra |
| 1 | CA-VMP-1 | 136 | 46 | 2 | 6 | 0.17 | 9636 | 398 | 16 | 1 | 401 | 21 |
| 2 | CA-VMP-1 | 134 | 54 | 2 | 130 | 4 | 8709 | 416 | 19 | 2 | 326 | 17 |
| 3 | CA-VMP-1 | 147 | 43 | 2 | 6 | 0.17 | 10235 | 380 | 23 | 2 | 256 | 13 |
| 4 | CA-VMP-1 | 81 | 42 | 2 | 19 | 1 | 5359 | 381 | 29 | 2 | 298 | 16 |
| 5 | CA-VMP-1 | 90 | 40 | 2 | 29 | 1 | 6490 | 410 | 24 | 2 | 301 | 16 |
| 6 | CA-VMP-1 | 100 | 40 | 2 | 19 | 1 | 7041 | 418 | 16 | 1 | 218 | 11 |
| 7 | CA-VMP-2 | 174 | 63 | 2 | 5 | 0.14 | 10106 | 385 | 15 | 1 | 442 | 23 |
| 8 | CA-VMP-2 | 172 | 68 | 3 | 88 | 2 | 9211 | 408 | 19 | 2 | 318 | 17 |
| 9 | CA-VMP-2 | 142 | 46 | 2 | 4 | 0.11 | 9206 | 408 | 21 | 2 | 171 | 9 |
| 10 | CA-VMP-2 | 91 | 47 | 2 | 13 | 0.37 | 5038 | 369 | 22 | 2 | 173 | 9 |
| 11 | CA-VMP-2 | 114 | 49 | 2 | 38 | 1 | 6493 | 410 | 18 | 1 | 184 | 10 |
| 12 | CA-VMP-2 | 17 | 13 | 1 | <3 | -- | 1056 | 107 | <5 | -- | <35 | -- |

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1201.R19

| Muestras | | Elementos | | | | | | | | | | |
|----------|--|---------------------|---------------------|-------------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|----------------------|---------------------|-------------------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MA1510 Pb* | Incertidumbre Pb | MA1510 Sb* | Incertidumbre Sb | MA1510 Se* | Incertidumbre Se | MA1510 Si* | Incertidumbre Si | MA1510 Sn* | Incertidumbre Sn | MA1510 Sr* |
| | | Plomo µg/Muestra | µg/Muestra | Antimonio µg/Muestra | µg/Muestra | Selenio µg/Muestra | µg/Muestra | Silicio µg/Muestra | µg/Muestra | Estaño µg/Muestra | µg/Muestra | Estroncio µg/Muestra |
| | | 12 | | 9 | | 55 | | 60 | | 15 | | 0.3 |
| | | 4 | | 3 | | 18 | | 20 | | 5 | | 0.1 |
| 1 | CA-VMP-1 | 412 | 14 | <9 | -- | <55 | -- | 948 | 141 | <15 | -- | 19.3 |
| 2 | CA-VMP-1 | 590 | 25 | 26 | 4 | <55 | -- | 2623 | 295 | <15 | -- | 21.0 |
| 3 | CA-VMP-1 | 510 | 19 | 16 | 2 | <55 | -- | 2461 | 285 | <15 | -- | 19.3 |
| 4 | CA-VMP-1 | 1323 | 105 | 35 | 5 | <55 | -- | 1961 | 249 | <15 | -- | 16.2 |
| 5 | CA-VMP-1 | 1050 | 69 | 14 | 2 | <55 | -- | 1615 | 217 | <15 | -- | 16.0 |
| 6 | CA-VMP-1 | 1245 | 94 | 30 | 5 | <55 | -- | 2150 | 264 | <15 | -- | 17.3 |
| 7 | CA-VMP-2 | 295 | 8 | <9 | -- | <55 | -- | 2496 | 287 | <15 | -- | 25.6 |
| 8 | CA-VMP-2 | 364 | 11 | 17 | 3 | <55 | -- | 3125 | 317 | <15 | -- | 26.9 |
| 9 | CA-VMP-2 | 324 | 9 | 10 | 2 | <55 | -- | 2572 | 292 | <15 | -- | 21.3 |
| 10 | CA-VMP-2 | 210 | 5 | 14 | 2 | <55 | -- | 576 | 90 | <15 | -- | 17.9 |
| 11 | CA-VMP-2 | 183 | 4 | <9 | -- | <55 | -- | 2618 | 295 | <15 | -- | 20.8 |
| 12 | CA-VMP-2 | 269 | 7 | 40 | 6 | <55 | -- | 1215 | 174 | 23 | 3 | 5.9 |

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



Registro N°LE -022

INFORME DE ENSAYO
N° ABR1201.R19

| Muestras | | Elementos | | | | | | | | |
|----------|--|---------------|-----------------------|---------------|---------------------|---------------|-----------------------|---------------|--------------------|---------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre |
| | | Sr | Ti* | Ti | Tl* | Tl | V* | V | Zn* | Zn |
| | | µg/Muestra | Titanio µg/Muestra | µg/Muestra | Talio µg/Muestra | µg/Muestra | Vanadio µg/Muestra | µg/Muestra | Zinc µg/Muestra | µg/Muestra |
| | | | 1 0.3 | | 60 20 | | 2.5 0.8 | | 45 15 | |
| 1 | CA-VMP-1 | 3.7 | 51 | 1 | <60 | -- | 31.3 | 6.5 | 400 | 52 |
| 2 | CA-VMP-1 | 4 | 59 | 1 | <60 | -- | 41.2 | 8.5 | 396 | 52 |
| 3 | CA-VMP-1 | 3.7 | 51 | 1 | <60 | -- | 63.2 | 13.1 | 256 | 30 |
| 4 | CA-VMP-1 | 3.1 | 38 | 1 | <60 | -- | 61.3 | 12.7 | 339 | 42 |
| 5 | CA-VMP-1 | 3 | 33 | 1 | <60 | -- | 47.9 | 9.9 | 417 | 55 |
| 6 | CA-VMP-1 | 3.3 | 42 | 1 | <60 | -- | 35.9 | 7.4 | 307 | 38 |
| 7 | CA-VMP-2 | 4.9 | 59 | 1 | <60 | -- | 30.9 | 6.4 | 409 | 54 |
| 8 | CA-VMP-2 | 5.1 | 73 | 2 | <60 | -- | 40.7 | 8.4 | 391 | 51 |
| 9 | CA-VMP-2 | 4.1 | 56 | 1 | <60 | -- | 52.8 | 11 | 243 | 28 |
| 10 | CA-VMP-2 | 3.4 | 57 | 1 | <60 | -- | 53.2 | 11.1 | 224 | 26 |
| 11 | CA-VMP-2 | 4 | 65 | 1 | <60 | -- | 40.5 | 8.4 | 495 | 69 |
| 12 | CA-VMP-2 | 1.1 | 17 | 0.4 | <60 | -- | 3.1 | 0.6 | 57 | 6 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



CONTROL DE CALIDAD

| Muestras QC | | Elementos | | | | | | | | | |
|-------------|---|---------------------|-------------------|--|------------------------|-------------------------|------------------------|------------------------|------------------------|--------------------------|------------------------|
| N° | Codigo de Servicio Elemento Unidad Limite de Cuantificación LC | MA0216 | MA0216 | MA0216 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 |
| | | Peso. Inicial* g | Peso. Final* g | Determinación de Peso: PM10_AV µg/Muestra 5582 | Ag* µg/Muestra 1 | Al* µg/Muestra 20 | As* µg/Muestra 9 | Ba* µg/Muestra 1 | Be* µg/Muestra 1 | Bi* µg/Muestra 350 | B* µg/Muestra 10 |
| 1 | Adición (% Recup.) | -- | -- | -- | 116.4 | 123.1 | 104.4 | 100.4 | 99.1 | -- | 121.8 |
| 2 | Adición Rango (%) | -- | -- | -- | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | -- | 75.0 - 125.0 |
| 3 | STD - Recuperación Obtenido (%) | -- | -- | -- | 112.2 | 95.0 | 99.2 | 96.9 | 96.4 | 97.2 | 94.2 |
| 4 | STD - Rango (%) | -- | -- | -- | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 |
| 5 | CA-VMP-1 (Original) | -- | -- | -- | <1 | 1154 | <9 | 25 | <1 | <350 | 58 |
| 6 | CA-VMP-1 (Dup) | -- | -- | -- | <1 | 1186 | <9 | 26 | <1 | <350 | 60 |
| 7 | CA-VMP-2 (Original) | 3.4491 | 3.6100 | 160900 | -- | -- | -- | -- | -- | -- | -- |
| 8 | CA-VMP-2 (Dup) | 3.4491 | 3.6105 | 161400 | -- | -- | -- | -- | -- | -- | -- |
| 9 | Blanco | -- | -- | -- | <1 | <20 | <9 | <1 | <1 | <350 | <10 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1201.R19

Registro N°LE -022

| Muestras QC | | Elementos | | | | | | | | | | | | |
|-------------|---|------------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| N° | Codigo de Servicio Elemento Unidad Limite de Cuantificación LC | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 |
| | | Ca* | Cd* | Co* | Cr* | Cu* | Fe* | K* | Hg* | Li* | Mg* | Mn* | Mo* | Na* |
| | | µg/Muestra 40 | µg/Muestra 2 | µg/Muestra 6 | µg/Muestra 4 | µg/Muestra 5 | µg/Muestra 15 | µg/Muestra 75 | µg/Muestra 20 | µg/Muestra 2 | µg/Muestra 9 | µg/Muestra 2 | µg/Muestra 3 | µg/Muestra 8 |
| 1 | Adición (% Recup.) | 120.9 | 98.2 | 98.2 | 98.7 | 110.7 | 115.1 | 116.0 | 89.3 | 94.2 | 124.4 | 99.6 | 100.4 | 123.1 |
| 2 | Adición Rango (%) | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 |
| 3 | STD - Recuperación Obtenido (%) | 103.6 | 98.3 | 96.9 | 95.0 | 97.8 | 97.8 | 117.2 | 91.4 | 90.6 | 97.8 | 95.6 | 94.4 | 115.0 |
| 4 | STD - Rango (%) | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 |
| 5 | CA-VMP-1 (Original) | 3764 | 3 | <6 | 38 | 280 | 2066 | 836 | <20 | <2 | 1817 | 43 | 6 | 10235 |
| 6 | CA-VMP-1 (Dup) | 3876 | 3 | <6 | 38 | 289 | 2121 | 861 | <20 | <2 | 1878 | 44 | 5 | 10588 |
| 7 | CA-VMP-2 (Original) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 8 | CA-VMP-2 (Dup) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 9 | Blanco | <40 | <2 | <6 | <4 | <5 | <15 | <75 | <20 | <2 | <9 | <2 | <3 | <8 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1201.R19

| Muestras QC | | Elementos | | | | | | | | | | | |
|-------------|---|-----------------|------------------|------------------|-----------------|------------------|------------------|------------------|-------------------|-----------------|------------------|-------------------|------------------|
| N° | Codigo de Servicio Elemento Unidad Limite de Cuantificación LC | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 |
| | | Ni* | P* | Pb* | Sb* | Se* | Si* | Sn* | Sr* | Ti* | Tl* | V* | Zn* |
| | | µg/Muestra 5 | µg/Muestra 35 | µg/Muestra 12 | µg/Muestra 9 | µg/Muestra 55 | µg/Muestra 60 | µg/Muestra 15 | µg/Muestra 0.3 | µg/Muestra 1 | µg/Muestra 60 | µg/Muestra 2.5 | µg/Muestra 45 |
| 1 | Adición (% Recup.) | 95.6 | 116.4 | 120.9 | 101.3 | 104.0 | 116.4 | 96.4 | 96.9 | 102.2 | 91.6 | 98.7 | 117.3 |
| 2 | Adición Rango (%) | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 |
| 3 | STD - Recuperación Obtenido (%) | 96.9 | 113.3 | 95.6 | 93.9 | 92.8 | 118.1 | 98.6 | 94.0 | 95.0 | 96.9 | 94.6 | 95.0 |
| 4 | STD - Rango (%) | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 |
| 5 | CA-VMP-1 (Original) | 23 | 256 | 510 | 16 | <55 | 2461 | <15 | 19.3 | 51 | <60 | 63.2 | 256 |
| 6 | CA-VMP-1 (Dup) | 23 | 268 | 524 | 17 | <55 | 2554 | <15 | 19.9 | 53 | <60 | 65.3 | 263 |
| 7 | CA-VMP-2 (Original) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 8 | CA-VMP-2 (Dup) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 9 | Blanco | <5 | <35 | <12 | <9 | <55 | <60 | <15 | <0.3 | <1 | <60 | <2.5 | <45 |

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



METODOS DE ENSAYO Y CODIGOS DE SERVICIO

| N° | Descripción | | | |
|----|---|---|----------|---|
| | Analito | Denominación | Cod.Serv | (1) Norma o Referencia |
| 1 | Metales por ICP OES Filro PM10 Alto Volumen * | Metales por ICP OES Filro PM10 Alto Volumen | MA1510 | EPA Compendium Method IO-3 4. 1999. Determination of Metals in Ambient Particulate Matter using Inductively Coupled Plasma(ICP) Spectroscopy. Excepto Muestreo. |
| 2 | Determinación de Peso: PM10_AV | Determinación de Peso: Filtro PM10 Alto Volumen | MA0216 | IC-MA-95 Rev.02 (Validado) 2017. Determinación de Peso: Filtro M10 y PM2.5 Alto Volumen |

(*) Los métodos indicados no han sido acreditados por el INACAL-DA.

- (1) SMEWW: Standard Methods for the Examination of Water and Wastewater.
 APHA : American Public Health Association.
 AWWA: American Water Works Association.
 WEF : Water Environment Federation.
 EPA : Environmental Protection Agency.
 ASTM: American Society for Testing and Materials.
 ISO: International Organization for Standardization.
 NTP: Norma Técnica Peruana.
 NIOSH: The National Institute for Occupational Safety and Health.

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



INFORME DE ENSAYO N° ABR1202.R19

| | |
|--|---|
| SOLICITANTE : | ORGANISMO DE EVALUACIÓN Y FISCALIZACIÓN AMBIENTAL |
| DOMICILIO LEGAL : | Av. Faustino Sánchez Carrión N° 603 Jesús María, Lima |
| SOLICITADO POR : | Dirección de Evaluación Ambiental |
| SOLICITUD DE SERVICIO AMBIENTAL: | SSA N° 162-19 |
| REFERENCIA : | CUC: 0002-4-2019-401 RS N°: 820-2019 Ventanilla y Mi Perú / Callao Monitoreo Calidad de Aire |
| FECHA DE MUESTREO : | 2019/04/08 al 2019/04/27 |
| MUESTRA TOMADA POR : | EL CLIENTE |
| PROTOCOLO : | -- |
| TIPO DE MUESTRA: | Filtro |
| NÚMERO DE MUESTRAS : | 12 |
| PRESENTACIÓN DE LAS MUESTRAS : | Filtro de Cuarzo de 8"x10" |
| CONDICIÓN DE LAS MUESTRAS : RECEPCIONADAS | Muestras en buenas condiciones para los análisis solicitados. |
| FECHA DE RECEPCIÓN : | martes, 30 de Abril de 2019 |
| IDENTIFICACIÓN DE LAS MUESTRAS : | Según se indica |
| FECHA DE EJECUCIÓN DE ENSAYO : | 2019-04-30 al 2019-05-06 |
| FECHA DE REPORTE : | lunes, 06 de Mayo de 2019 |
| PERIODO DE CUSTODIA : | Hasta un mes. De acuerdo a las recomendaciones de la metodología o norma empleada. |

EDGAR NINA VELÁSQUEZ
Jefe Ambiental
CQP. 729

Lima, 6 de Mayo de 2019

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Los resultados corresponden a las muestras indicadas.
El laboratorio no es responsable de la información proporcionada por el cliente.
Los resultados se aplican a la muestra cómo se recibió por parte del cliente.



**INFORME DE ENSAYO
N° ABR1202.R19**

RESULTADOS

| Muestras | | Elementos | | | | | | |
|----------|--|---|----------------------------|-------------------------------------|---------------------------------------|-------------------------------------|--|---|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MON0000 Fecha Monitoreo | MON0000 Tipo Muestra | MA1000 Codigo de Filtro* PM10 | MA0216 Peso. Inicial* PM10 g | MA0216 Peso. Final* PM10 g | MA0216 Determinación de Peso: PM10_AV 5582 µg/Muestra 1229 | Incertidumbre Determinación de Peso: PM10_AV µg/Muestra |
| 1 | CA-VMP-6 | Inicio: 2019-04-08 10:58 Fin: 2019-04-09 10:58 | Filtro | 0201A.R19 | 3.4789 | 3.6383 | 159400 | 2871 |
| 2 | CA-VMP-6 | Inicio: 2019-04-11 09:54 Fin: 2019-04-12 10:04 | Filtro | 0205A.R19 | 3.4912 | 3.6363 | 145100 | 2814 |
| 3 | CA-VMP-6 | Inicio: 2019-04-16 10:36 Fin: 2019-04-17 10:40 | Filtro | 0209A.R19 | 3.4180 | 3.5444 | 126400 | 2745 |
| 4 | CA-VMP-6 | Inicio: 2019-04-24 10:39 Fin: 2019-04-25 10:19 | Filtro | 0213A.R19 | 3.4629 | 3.5796 | 116700 | 2711 |
| 5 | CA-VMP-6 | Inicio: 2019-04-25 10:30 Fin: 2019-04-26 10:32 | Filtro | 0217A.R19 | 3.4584 | 3.5659 | 107500 | 2680 |
| 6 | CA-VMP-6 | Inicio: 2019-04-26 10:39 Fin: 2019-04-27 10:48 | Filtro | 0221A.R19 | 3.4985 | 3.6251 | 126600 | 2746 |
| 7 | CA-VMP-7 | Inicio: 2019-04-08 11:23 Fin: 2019-04-09 11:23 | Filtro | 0202A.R19 | 3.5177 | 3.7258 | 208100 | 3084 |
| 8 | CA-VMP-7 | Inicio: 2019-04-11 10:15 Fin: 2019-04-12 10:22 | Filtro | 0206A.R19 | 3.4882 | 3.6542 | 166000 | 2898 |
| 9 | CA-VMP-7 | Inicio: 2019-04-16 10:55 Fin: 2019-04-17 10:58 | Filtro | 0210A.R19 | 3.4306 | 3.5774 | 146800 | 2821 |
| 10 | CA-VMP-7 | Inicio: 2019-04-24 11:00 Fin: 2019-04-25 10:46 | Filtro | 0214A.R19 | 3.4480 | 3.5712 | 123200 | 2734 |
| 11 | CA-VMP-7 | Inicio: 2019-04-25 10:55 Fin: 2019-04-26 11:11 | Filtro | 0218A.R19 | 3.4764 | 3.5839 | 107500 | 2680 |
| 12 | CA-VMP-7 | Inicio: 2019-04-26 11:32 Fin: 2019-04-27 11:18 | Filtro | 0222A.R19 | 3.5054 | 3.6403 | 134900 | 2776 |

"EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE"



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1202.R19

| Muestras | | Elementos | | | | | | | | | | |
|----------|--|---------------------|---------------------|------------------------|---------------------|------------------------|---------------------|---------------------|---------------------|-----------------------|---------------------|-----------------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MA1510 Ag* | Incertidumbre Ag | MA1510 Al* | Incertidumbre Al | MA1510 As* | Incertidumbre As | MA1510 Ba* | Incertidumbre Ba | MA1510 Be* | Incertidumbre Be | MA1510 Bi* |
| | | Plata µg/Muestra | µg/Muestra | Aluminio µg/Muestra | µg/Muestra | Arsenico µg/Muestra | µg/Muestra | Bario µg/Muestra | µg/Muestra | Berilio µg/Muestra | µg/Muestra | Bismuto µg/Muestra |
| | | 1 | | 20 | | 9 | | 1 | | 1 | | 350 |
| | | 0.3 | | 7 | | 3 | | 0.3 | | 0.3 | | 117 |
| 1 | CA-VMP-6 | <1 | -- | 835 | 143 | <9 | -- | 25 | 1 | <1 | -- | <350 |
| 2 | CA-VMP-6 | <1 | -- | 1051 | 185 | <9 | -- | 28 | 1 | <1 | -- | <350 |
| 3 | CA-VMP-6 | <1 | -- | 627 | 105 | <9 | -- | 19 | 0.4 | <1 | -- | <350 |
| 4 | CA-VMP-6 | <1 | -- | 806 | 138 | <9 | -- | 29 | 1 | <1 | -- | <350 |
| 5 | CA-VMP-6 | <1 | -- | 614 | 103 | <9 | -- | 21 | 0.4 | <1 | -- | <350 |
| 6 | CA-VMP-6 | <1 | -- | 719 | 122 | <9 | -- | 25 | 1 | <1 | -- | <350 |
| 7 | CA-VMP-7 | <1 | -- | 1151 | 205 | <9 | -- | 29 | 1 | <1 | -- | <350 |
| 8 | CA-VMP-7 | <1 | -- | 1244 | 224 | <9 | -- | 32 | 1 | <1 | -- | <350 |
| 9 | CA-VMP-7 | <1 | -- | 986 | 172 | <9 | -- | 23 | 0.4 | <1 | -- | <350 |
| 10 | CA-VMP-7 | <1 | -- | 1188 | 213 | <9 | -- | 29 | 1 | <1 | -- | <350 |
| 11 | CA-VMP-7 | <1 | -- | 735 | 125 | <9 | -- | 19 | 0.4 | <1 | -- | <350 |
| 12 | CA-VMP-7 | <1 | -- | 718 | 122 | <9 | -- | 22 | 0.5 | <1 | -- | <350 |

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LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1202.R19

Registro N°LE -022

| Muestras | | Elementos | | | | | | | | | | |
|----------|--|------------------|----------------|-----------------|-------------------|------------------|-------------------|------------------|--------------------|------------------|------------------|------------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | Incertidumbre Bi | MA1510 B* Boro | Incertidumbre B | MA1510 Ca* Calcio | Incertidumbre Ca | MA1510 Cd* Cadmio | Incertidumbre Cd | MA1510 Co* Cobalto | Incertidumbre Co | MA1510 Cr* Cromo | Incertidumbre Cr |
| | | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra |
| 1 | CA-VMP-6 | -- | 19 | 4 | 3955 | 185 | <2 | -- | <6 | -- | 57 | 9 |
| 2 | CA-VMP-6 | -- | 26 | 5 | 3607 | 171 | 2 | 0.04 | <6 | -- | 33 | 5 |
| 3 | CA-VMP-6 | -- | 48 | 10 | 2940 | 143 | <2 | -- | <6 | -- | 72 | 11 |
| 4 | CA-VMP-6 | -- | <10 | -- | 3526 | 168 | 2 | 0.04 | <6 | -- | 29 | 4 |
| 5 | CA-VMP-6 | -- | 21 | 4 | 2759 | 135 | <2 | -- | <6 | -- | 55 | 8 |
| 6 | CA-VMP-6 | -- | 44 | 9 | 3102 | 150 | <2 | -- | <6 | -- | 58 | 9 |
| 7 | CA-VMP-7 | -- | 11 | 2 | 5078 | 228 | 3 | 0.06 | <6 | -- | 40 | 6 |
| 8 | CA-VMP-7 | -- | <10 | -- | 4495 | 207 | 3 | 0.06 | <6 | -- | 52 | 8 |
| 9 | CA-VMP-7 | -- | <10 | -- | 3126 | 151 | <2 | -- | <6 | -- | 57 | 9 |
| 10 | CA-VMP-7 | -- | 20 | 4 | 3886 | 183 | 3 | 0.06 | <6 | -- | 69 | 11 |
| 11 | CA-VMP-7 | -- | <10 | -- | 2903 | 141 | 3 | 0.06 | <6 | -- | 59 | 9 |
| 12 | CA-VMP-7 | -- | 60 | 13 | 3393 | 162 | 3 | 0.06 | <6 | -- | 46 | 7 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1202.R19

| Muestras | | Elementos | | | | | | | | | | | |
|----------|--|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|------------|---------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre |
| | | Cu* | Cu | Fe* | Fe | K* | K | Hg* | Hg | Li* | Li | Mg* | Mg |
| | | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra |
| | | 5 | | 15 | | 75 | | 20 | | 2 | | 9 | |
| | | 2 | | 5 | | 25 | | 6.7 | | 0.7 | | 3 | |
| 1 | CA-VMP-6 | 85 | 8 | 1842 | 228 | 819 | 100 | <20 | -- | <2 | -- | 1965 | |
| 2 | CA-VMP-6 | 130 | 12 | 1892 | 235 | 788 | 96 | <20 | -- | <2 | -- | 1676 | |
| 3 | CA-VMP-6 | 73 | 7 | 1508 | 181 | 764 | 93 | <20 | -- | <2 | -- | 1810 | |
| 4 | CA-VMP-6 | 158 | 15 | 1639 | 199 | 573 | 71 | <20 | -- | <2 | -- | 1193 | |
| 5 | CA-VMP-6 | 84 | 8 | 1399 | 166 | 520 | 65 | <20 | -- | <2 | -- | 1131 | |
| 6 | CA-VMP-6 | 64 | 6 | 1593 | 193 | 619 | 76 | <20 | -- | <2 | -- | 1308 | |
| 7 | CA-VMP-7 | 149 | 14 | 2708 | 359 | 831 | 101 | <20 | -- | <2 | -- | 1988 | |
| 8 | CA-VMP-7 | 213 | 20 | 2487 | 324 | 779 | 95 | <20 | -- | <2 | -- | 1747 | |
| 9 | CA-VMP-7 | 116 | 11 | 1961 | 245 | 697 | 86 | <20 | -- | <2 | -- | 1619 | |
| 10 | CA-VMP-7 | 241 | 23 | 2503 | 327 | 632 | 78 | <20 | -- | <2 | -- | 1299 | |
| 11 | CA-VMP-7 | 94 | 9 | 1578 | 191 | 465 | 58 | <20 | -- | <2 | -- | 1070 | |
| 12 | CA-VMP-7 | 160 | 15 | 1583 | 191 | 611 | 76 | <20 | -- | <2 | -- | 1293 | |

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LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO N° ABR1202.R19

| Muestras | | Elementos | | | | | | | | | | |
|----------|--|------------------|--|------------------|--|------------------|--|------------------|---|------------------|---|-----------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre | MA1510 | Incertidumbre |
| | | Mg µg/Muestra | Mn* Manganeso µg/Muestra 2 0.7 | Mn µg/Muestra | Mo* Molibdeno µg/Muestra 3 1 | Mo µg/Muestra | Na* Sodio µg/Muestra 8 2.7 | Na µg/Muestra | Ni* Niquel µg/Muestra 5 1.7 | Ni µg/Muestra | P* Fósforo µg/Muestra 35 11.7 | P µg/Muestra |
| 1 | CA-VMP-6 | 164 | 40 | 2 | <3 | -- | 11973 | 301 | 13 | 1 | 264 | 14 |
| 2 | CA-VMP-6 | 131 | 42 | 2 | 811 | 19 | 9779 | 394 | 16 | 1 | 209 | 11 |
| 3 | CA-VMP-6 | 146 | 26 | 1 | <3 | -- | 11998 | 299 | 22 | 2 | 109 | 6 |
| 4 | CA-VMP-6 | 83 | 40 | 2 | 6 | 0.17 | 5978 | 399 | 27 | 2 | 230 | 12 |
| 5 | CA-VMP-6 | 77 | 28 | 1 | 5 | 0.14 | 6576 | 411 | 22 | 2 | 119 | 6 |
| 6 | CA-VMP-6 | 94 | 32 | 1 | <3 | -- | 7307 | 420 | 13 | 1 | 122 | 6 |
| 7 | CA-VMP-7 | 167 | 62 | 2 | 6 | 0.17 | 10601 | 367 | 17 | 1 | 492 | 25 |
| 8 | CA-VMP-7 | 139 | 56 | 2 | 176 | 5 | 8811 | 415 | 23 | 2 | 327 | 17 |
| 9 | CA-VMP-7 | 125 | 42 | 2 | <3 | -- | 9182 | 408 | 24 | 2 | 163 | 9 |
| 10 | CA-VMP-7 | 93 | 55 | 2 | 22 | 1 | 5848 | 395 | 34 | 3 | 322 | 17 |
| 11 | CA-VMP-7 | 72 | 37 | 1 | 16 | 0.46 | 5329 | 380 | 16 | 1 | 175 | 9 |
| 12 | CA-VMP-7 | 92 | 38 | 1 | 20 | 1 | 6815 | 415 | 20 | 2 | 261 | 14 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1202.R19

| Muestras | | Elementos | | | | | | | | | | |
|----------|--|---------------------|---------------------|-------------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|----------------------|---------------------|-------------------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MA1510 Pb* | Incertidumbre Pb | MA1510 Sb* | Incertidumbre Sb | MA1510 Se* | Incertidumbre Se | MA1510 Si* | Incertidumbre Si | MA1510 Sn* | Incertidumbre Sn | MA1510 Sr* |
| | | Plomo µg/Muestra | µg/Muestra | Antimonio µg/Muestra | µg/Muestra | Selenio µg/Muestra | µg/Muestra | Silicio µg/Muestra | µg/Muestra | Estaño µg/Muestra | µg/Muestra | Estroncio µg/Muestra |
| | | 12 | | 9 | | 55 | | 60 | | 15 | | 0.3 |
| | | 4 | | 3 | | 18 | | 20 | | 5 | | 0.1 |
| 1 | CA-VMP-6 | 190 | 4 | <9 | -- | <55 | -- | 1832 | 237 | <15 | -- | 21.7 |
| 2 | CA-VMP-6 | 201 | 4 | <9 | -- | <55 | -- | 2083 | 259 | <15 | -- | 20.1 |
| 3 | CA-VMP-6 | 85 | 1 | <9 | -- | <55 | -- | 1550 | 210 | <15 | -- | 18.9 |
| 4 | CA-VMP-6 | 113 | 2 | 17 | 3 | <55 | -- | 1932 | 246 | <15 | -- | 22.8 |
| 5 | CA-VMP-6 | 80 | 1 | <9 | -- | <55 | -- | 1627 | 218 | <15 | -- | 14.7 |
| 6 | CA-VMP-6 | 157 | 3 | <9 | -- | <55 | -- | 1776 | 232 | <15 | -- | 16.8 |
| 7 | CA-VMP-7 | 217 | 5 | 10 | 2 | <55 | -- | 2284 | 274 | <15 | -- | 22.9 |
| 8 | CA-VMP-7 | 485 | 18 | 32 | 5 | <55 | -- | 2654 | 297 | <15 | -- | 22.0 |
| 9 | CA-VMP-7 | 99 | 2 | <9 | -- | <55 | -- | 2364 | 279 | <15 | -- | 17.3 |
| 10 | CA-VMP-7 | 396 | 13 | 28 | 4 | <55 | -- | 2621 | 295 | <15 | -- | 17.2 |
| 11 | CA-VMP-7 | 192 | 4 | <9 | -- | <55 | -- | 1608 | 216 | <15 | -- | 13.8 |
| 12 | CA-VMP-7 | 219 | 5 | 21 | 3 | <55 | -- | 1436 | 198 | <15 | -- | 16.0 |

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LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



Registro N°LE -022

INFORME DE ENSAYO
N° ABR1202.R19

| Muestras | | Elementos | | | | | | | | |
|----------|--|------------------|-----------------------------------|------------------|---------------------------------|------------------|-------------------------------------|-----------------|--------------------------------|------------------|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | Incertidumbre Sr | MA1510 Ti* | Incertidumbre Ti | MA1510 Tl* | Incertidumbre Tl | MA1510 V* | Incertidumbre V | MA1510 Zn* | Incertidumbre Zn |
| | | µg/Muestra | Titanio µg/Muestra 1 0.3 | µg/Muestra | Talio µg/Muestra 60 20 | µg/Muestra | Vanadio µg/Muestra 2.5 0.8 | µg/Muestra | Zinc µg/Muestra 45 15 | µg/Muestra |
| 1 | CA-VMP-6 | 4.1 | 35 | 1 | <60 | -- | 33.9 | 7 | 218 | 25 |
| 2 | CA-VMP-6 | 3.8 | 39 | 1 | <60 | -- | 29.4 | 6.1 | 251 | 29 |
| 3 | CA-VMP-6 | 3.6 | 26 | 1 | <60 | -- | 54.7 | 11.4 | 110 | 12 |
| 4 | CA-VMP-6 | 4.3 | 36 | 1 | <60 | -- | 51.0 | 10.6 | 292 | 35 |
| 5 | CA-VMP-6 | 2.8 | 27 | 1 | <60 | -- | 42.5 | 8.8 | 136 | 15 |
| 6 | CA-VMP-6 | 3.2 | 32 | 1 | <60 | -- | 27.3 | 5.7 | 206 | 23 |
| 7 | CA-VMP-7 | 4.4 | 50 | 1 | <60 | -- | 35.9 | 7.4 | 433 | 58 |
| 8 | CA-VMP-7 | 4.2 | 53 | 1 | <60 | -- | 42.0 | 8.7 | 391 | 51 |
| 9 | CA-VMP-7 | 3.3 | 46 | 1 | <60 | -- | 53.0 | 11 | 157 | 17 |
| 10 | CA-VMP-7 | 3.3 | 52 | 1 | <60 | -- | 71.6 | 14.9 | 360 | 46 |
| 11 | CA-VMP-7 | 2.6 | 28 | 1 | <60 | -- | 40.4 | 8.4 | 272 | 32 |
| 12 | CA-VMP-7 | 3 | 27 | 1 | <60 | -- | 38.7 | 8 | 336 | 42 |

EL USO INDEBIDO DE ESTE INFORME DE ENSAYO CONSTITUYE DELITO SANCIONADO CONFORME A LA LEY, POR LA AUTORIDAD COMPETENTE



CONTROL DE CALIDAD

| Muestras QC | | Elementos | | | | | | | | | |
|-------------|---|-------------------------------|-----------------------------|--|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------------------|----------------------------------|
| N° | Codigo de Servicio Elemento Unidad Limite de Cuantificación LC | MA0216 Peso. Inicial* g | MA0216 Peso. Final* g | MA0216 Determinación de Peso: PM10_AV µg/Muestra 5582 | MA1510 Ag* µg/Muestra 1 | MA1510 Al* µg/Muestra 20 | MA1510 As* µg/Muestra 9 | MA1510 Ba* µg/Muestra 1 | MA1510 Be* µg/Muestra 1 | MA1510 Bi* µg/Muestra 350 | MA1510 B* µg/Muestra 10 |
| 1 | Adición (% Recup.) | -- | -- | -- | 121.8 | 123.6 | 96.0 | 96.4 | 98.2 | -- | 108.4 |
| 2 | Adición Rango (%) | -- | -- | -- | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | -- | 75.0 - 125.0 |
| 3 | STD - Recuperación Obtenido (%) | -- | -- | -- | 112.5 | 99.7 | 98.3 | 99.2 | 100.6 | 97.2 | 95.8 |
| 4 | STD - Rango (%) | -- | -- | -- | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 |
| 5 | CA-VMP-6 (Original) | -- | -- | -- | <1 | 1051 | <9 | 28 | <1 | <350 | 26 |
| 6 | CA-VMP-6 (Dup) | -- | -- | -- | <1 | 1063 | <9 | 28 | <1 | <350 | 26 |
| 7 | CA-VMP-7 (Original) | 3.4480 | 3.5712 | 123200 | -- | -- | -- | -- | -- | -- | -- |
| 8 | CA-VMP-7 (Dup) | 3.4480 | 3.5715 | 123500 | -- | -- | -- | -- | -- | -- | -- |
| 9 | Blanco | -- | -- | -- | <1 | <20 | <9 | <1 | <1 | <350 | <10 |

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LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1202.R19

| Muestras QC | | Elementos | | | | | | | | | | | | |
|-------------|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| N° | Codigo de Servicio | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 |
| | Elemento | Ca* | Cd* | Co* | Cr* | Cu* | Fe* | K* | Hg* | Li* | Mg* | Mn* | Mo* | Na* |
| | Unidad | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra | µg/Muestra |
| | Limite de Cuantificación LC | 40 | 2 | 6 | 4 | 5 | 15 | 75 | 20 | 2 | 9 | 2 | 3 | 8 |
| 1 | Adición (% Recup.) | 110.7 | 97.8 | 97.8 | 81.8 | 95.1 | 104.4 | 120.9 | 88.9 | 91.1 | 111.6 | 95.1 | 100.0 | 110.7 |
| 2 | Adición Rango (%) | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 |
| 3 | STD - Recuperación Obtenido (%) | 105.8 | 101.1 | 100.3 | 97.2 | 99.7 | 99.7 | 108.1 | 92.8 | 93.9 | 100.8 | 97.8 | 97.5 | 105.6 |
| 4 | STD - Rango (%) | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 |
| 5 | CA-VMP-6 (Original) | 3607 | 2 | <6 | 33 | 130 | 1892 | 788 | <20 | <2 | 1676 | 42 | 811 | 9779 |
| 6 | CA-VMP-6 (Dup) | 3631 | 2 | <6 | 34 | 131 | 1902 | 791 | <20 | <2 | 1688 | 43 | 816 | 9879 |
| 7 | CA-VMP-7 (Original) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 8 | CA-VMP-7 (Dup) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 9 | Blanco | <40 | <2 | <6 | <4 | <5 | <15 | <75 | <20 | <2 | <9 | <2 | <3 | <8 |



LABORATORIO DE ENSAYO ACREDITADO POR EL ORGANISMO PERUANO
DE ACREDITACIÓN INACAL - DA CON REGISTRO N° LE 022



INFORME DE ENSAYO
N° ABR1202.R19

| Muestras QC | | Elementos | | | | | | | | | | | |
|-------------|---|-----------------|------------------|------------------|-----------------|------------------|------------------|------------------|-------------------|-----------------|------------------|-------------------|------------------|
| N° | Codigo de Servicio Elemento Unidad Limite de Cuantificación LC | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 | MA1510 |
| | | Ni* | P* | Pb* | Sb* | Se* | Si* | Sn* | Sr* | Ti* | Tl* | V* | Zn* |
| | | µg/Muestra 5 | µg/Muestra 35 | µg/Muestra 12 | µg/Muestra 9 | µg/Muestra 55 | µg/Muestra 60 | µg/Muestra 15 | µg/Muestra 0.3 | µg/Muestra 1 | µg/Muestra 60 | µg/Muestra 2.5 | µg/Muestra 45 |
| 1 | Adición (% Recup.) | 97.8 | 124.9 | 86.2 | 95.1 | 100.9 | 120.9 | 95.6 | 94.0 | 101.3 | 90.7 | 94.2 | 91.1 |
| 2 | Adición Rango (%) | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 | 75.0 - 125.0 |
| 3 | STD - Recuperación Obtenido (%) | 100.3 | 106.4 | 100.6 | 96.9 | 95.0 | 101.4 | 104.4 | 96.4 | 97.8 | 96.1 | 96.6 | 97.5 |
| 4 | STD - Rango (%) | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 | 80.0-120.0 |
| 5 | CA-VMP-6 (Original) | 16 | 209 | 201 | <9 | <55 | 2083 | <15 | 20.1 | 39 | <60 | 29.4 | 251 |
| 6 | CA-VMP-6 (Dup) | 15 | 209 | 190 | <9 | <55 | 2101 | <15 | 20.4 | 40 | <60 | 29.3 | 252 |
| 7 | CA-VMP-7 (Original) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 8 | CA-VMP-7 (Dup) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 9 | Blanco | <5 | <35 | <12 | <9 | <55 | <60 | <15 | <0.3 | <1 | <60 | <2.5 | <45 |

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METODOS DE ENSAYO Y CODIGOS DE SERVICIO

| N° | Descripción | | | |
|----|---|---|----------|---|
| | Analito | Denominación | Cod.Serv | (1) Norma o Referencia |
| 1 | Metales por ICP OES Filro PM10 Alto Volumen * | Metales por ICP OES Filro PM10 Alto Volumen | MA1510 | EPA Compendium Method IO-3 4. 1999. Determination of Metals in Ambient Particulate Matter using Inductively Coupled Plasma(ICP) Spectroscopy. Excepto Muestreo. |
| 2 | Determinación de Peso: PM10_AV | Determinación de Peso: Filtro PM10 Alto Volumen | MA0216 | IC-MA-95 Rev.02 (Validado) 2017. Determinación de Peso: Filtro M10 y PM2.5 Alto Volumen |

(*) Los métodos indicados no han sido acreditados por el INACAL-DA.

(1) SMEWW: Standard Methods for the Examination of Water and Wastewater.

APHA : American Public Health Association.

AWWA: American Water Works Association.

WEF : Water Environment Federation.

EPA : Environmental Protection Agency.

ASTM: American Society for Testing and Materials.

ISO: International Organization for Standardization.

NTP: Norma Técnica Peruana.

NIOSH: The National Institute for Occupational Safety and Health.



INFORME DE ENSAYO N° ABR1204.R19

| | |
|--|---|
| SOLICITANTE : | ORGANISMO DE EVALUACIÓN Y FISCALIZACIÓN AMBIENTAL |
| DOMICILIO LEGAL : | Av. Faustino Sánchez Carrión N° 603 Jesús María, Lima |
| SOLICITADO POR : | Dirección de Evaluación Ambiental |
| SOLICITUD DE SERVICIO AMBIENTAL: | SSA N° 162-19 |
| REFERENCIA : | CUC: 0002-4-2019-401 RS N°: 820-2019 Ventanilla y Mi Perú / Callao Monitoreo Calidad de Aire |
| FECHA DE MUESTREO : | 2019/04/26 |
| MUESTRA TOMADA POR : | EL CLIENTE |
| PROTOCOLO : | -- |
| TIPO DE MUESTRA: | Filtro |
| NÚMERO DE MUESTRAS : | 4 |
| PRESENTACIÓN DE LAS MUESTRAS : | Filtro de Cuarzo de 8"x10" / Filtro de Teflón de 46.2 mm de diámetro. |
| CONDICIÓN DE LAS MUESTRAS : RECEPCIONADAS | Muestras en buenas condiciones para los análisis solicitados. |
| FECHA DE RECEPCIÓN : | martes, 30 de Abril de 2019 |
| IDENTIFICACIÓN DE LAS MUESTRAS : | Según se indica |
| FECHA DE EJECUCIÓN DE ENSAYO : | 2019-04-30 al 2019-05-06 |
| FECHA DE REPORTE : | lunes, 06 de Mayo de 2019 |
| PERIODO DE CUSTODIA : | Hasta un mes. De acuerdo a las recomendaciones de la metodología o norma empleada. |

EDGAR NINA VELÁSQUEZ
Jefe Ambiental
CQP. 729

Lima, 6 de Mayo de 2019

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"Los resultados de los ensayos no deben ser utilizados como una certificación de conformidad con normas de producto o como certificado del sistema de calidad de la entidad que lo produce".
Los resultados corresponden a las muestras indicadas.
El laboratorio no es responsable de la información proporcionada por el cliente.
Los resultados se aplican a la muestra cómo se recibió por parte del cliente.



RESULTADOS

| Muestras | | Elementos | | | | | | |
|----------|--|---|----------------------------|--|---------------------------------------|-------------------------------------|--|---|
| N° | Codigo de Servicio Elemento Nombre de Analito Unidad Limite de Cuantificación LC Limite de Detección LD | MON0000 Fecha Monitoreo | MON0000 Tipo Muestra | MA1000 Codigo de Filtro* PM10 | MA0216 Peso. Inicial* PM10 g | MA0216 Peso. Final* PM10 g | MA0216 Determinación de Peso: PM10_AV µg/Muestra 5582 1229 | Incertidumbre Determinación de Peso: PM10_AV µg/Muestra |
| 1 | CA-VMP-1 | Inicio: 2019-04-26 11:49 Fin: 2019-04-26 11:54 | Filtro | 0226A.R19 | 3.4828 | 3.4842 | <5582 | -- |
| 2 | CA-VMP-2 | Inicio: 2019-04-26 12:28 Fin: 2019-04-26 12:33 | Filtro | 0227A.R19 | 3.5105 | 3.5113 | <5582 | -- |
| 3 | CA-VMP-7 | Inicio: 2019-04-26 11:21 Fin: 2019-04-26 11:26 | Filtro | 0225A.R19 | 3.5095 | 3.5105 | <5582 | -- |
| 4 | CA-VMP-1 | Inicio: 2019-04-26 11:51 Fin: 2019-04-26 11:56 | Filtro | -- | -- | -- | -- | -- |



INFORME DE ENSAYO
N° ABR1204.R19

| Muestras | | Elementos | | | | |
|----------|-----------------------------|-------------------|----------------|---------------|---------------------------------|---------------------------------|
| N° | Codigo de Servicio | MA1000 | MA1343 | MA1343 | MA1343 | Incertidumbre |
| | Elemento | Codigo de Filtro* | Peso. Inicial* | Peso. Final* | Determinación de Peso: PM2.5_EV | Determinación de Peso: PM2.5_BV |
| | Nombre de Analito | PM2.5 | PM2.5 | PM2.5 | µg/Muestra | µg/Muestra |
| | Unidad | | ug | ug | | |
| | Limite de Cuantificación LC | | | | 60 | |
| | Limite de Detección LD | | | | 20 | |
| 1 | CA-VMP-1 | -- | -- | -- | -- | -- |
| 2 | CA-VMP-2 | -- | -- | -- | -- | -- |
| 3 | CA-VMP-7 | -- | -- | -- | -- | -- |
| 4 | CA-VMP-1 | 0219T.R19 | 139472 | 139497 | <60 | -- |

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Registro N°LE -022

**INFORME DE ENSAYO
N° ABR1204.R19**

CONTROL DE CALIDAD

| Muestras QC | | Elementos | | | | | |
|-------------|---|-----------------------------|---------------------------|--|-------------------------------|-----------------------------|---|
| N° | Codigo de Servicio Elemento Unidad Limite de Cuantificación LC | MA0216 | MA0216 | MA0216 | MA1343 | MA1343 | MA1343 |
| | | Peso. Inicial* PM10 g | Peso. Final* PM10 g | Determinación de Peso: PM10_AV µg/Muestra 5582 | Peso. Inicial* PM2.5 ug | Peso. Final* PM2.5 ug | Determinación de Peso: PM2.5_EV µg/Muestra 60 |
| 1 | CA-VMP-2 (Original) | 3.5105 | 3.5113 | <5582 | -- | -- | -- |
| 2 | CA-VMP-2 (Dup) | 3.5105 | 3.5112 | <5582 | -- | -- | -- |
| 3 | CA-VMP-1 (Original) | -- | -- | -- | 139472 | 139497 | <60 |
| 4 | CA-VMP-1 (Dup) | -- | -- | -- | 139472 | 139491 | <60 |

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METODOS DE ENSAYO Y CODIGOS DE SERVICIO

| N° | Descripción | | | |
|----|---------------------------------|--|----------|---|
| | Analito | Denominación | Cod.Serv | (1) Norma o Referencia |
| 1 | Determinación de Peso: PM2.5_BV | Determinación de Peso: Filtro PM2.5_Bajo Volumen | MA1343 | EPA CFR 40 Part 50 Appendix L (Validado). 2017. Reference Method for the Determination of the Fine Particulate Matter as PM 2.5 in the Atmosphere.Excepto Muestreo. |
| 2 | Determinación de Peso: PM10_AV | Determinación de Peso: Filtro PM10 Alto Volumen | MA0216 | IC-MA-95 Rev.02 (Validado) 2017. Determinación de Peso: Filtro M10 y PM2.5 Alto Volumen |

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- WEF : Water Environment Federation.
- EPA : Environmental Protection Agency.
- ASTM: American Society for Testing and Materials.
- ISO: International Organization for Standardization.
- NTP: Norma Técnica Peruana.
- NIOSH: The National Institute for Occupational Safety and Health.

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