Maintenance and Calibration Report

System ID

DMA 4100 M SN:81925186

Maintenance contract number

4000505467

Customer name & address

DEPARTAMENTO DEL META - SECRETARIA DE SALUD
Calle 37#41-116 Barrio Barzal Alto
VILLAVICENCIO - META
EDGAR CALDERON

Anton Paar Certified Service

Your service partner

Anton Paar Colombia S.A.S.
Calle 26 # 69 - 76
Torre 3. Oficina 1403
Edificio Elemento
Bogotá D.C., Colombia

Working for You.

Maintenance and Calibration Report

1 Results

	yes	no	n/a
Malfunction reported by customer	○	⊗	
Malfunction detected during maintenance	○	⊗	
Malfunction repaired	○	○	⊗
Condition before maintenance OK	⊗	○	
Cleaning agents are suitable for customer samples	⊗	○	
Calibration before maintenance OK	⊗	○	
SW/FW update performed	⊗	○	
Adjustments performed	⊗	○	
All maintenance parts replaced	⊗	○	
System meets specifications	⊗	○	

The measuring system meets the required specifications at the time of maintenance and calibration.

⊗ yes ○ no

NOTE: The calibration is only valid at the date of performance and in combination with the instrument specific adjustment data. Any readjustment will lead to loss of validity.

Comments

Se realiza visita visita de mantenimiento a equipo DMA 4100 M, equipo se encuentra en condiciones normales de desgaste por uso. El equipo se encuentra sin inconvenientes y operable.

Signatures

Service Engineer		Customer	
Name	Santiago Ramirez	Name	Edgar Calderon
Date	2024-08-22	Date	2024-08-22
Signature		Signature	

2 Customer Devices Checked

Master

Type	Serial no.	SW/FW before	SW/FW after
DMA 4100 M	81925186	2.93	2.98

Modules

Type	Serial no.	Type	Serial no.	Type	Serial no.
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA

Filling Unit / Sample Changer

Type	Serial no.
NA	NA
NA	NA

Accessories / Temperature Units

NA

External Software

Type	Version	SW before	SW after	Comments
NA	NA	NA	NA	NA

3 General Condition of Equipment before Maintenance

	yes	no	Comments
Faults reported by customer	☐	☒	No se reporta nada
Ambient conditions meet specifications	☒	☐	Dentro de parametros
System is clean outside	☒	☐	Sin manchas de muestras
Visible damage(s)	☐	☒	Sin novedades

4 Testing Devices

	Test device	Type / Name	Serial no., Inv. no.	Certificate no.
1	Termohigrobarometro	EXTECH	A.116231	CLT 143424
2	Termohigrobarometro	EXTECH	A.116231	CLH 67724
3	Termometro	MKT 10	82373726	CLT 310723
4	Termohigrobarometro	EXTECH	A.116231	CLP 45224
5	NA	NA	NA	NA
6	NA	NA	NA	NA
7	NA	NA	NA	NA
8	NA	NA	NA	NA

5 Calibration / Adjustment Media Used

	Name	Lot no., Batch no.	Certificate no.
1	Agua destilada	Laboratorio	Laboratorio
2	Agua Ultrapura	833916	2025-03-12
3	NA	NA	NA
4	NA	NA	NA
5	NA	NA	NA
6	NA	NA	NA
7	NA	NA	NA
8	NA	NA	NA
9	NA	NA	NA
10	NA	NA	NA

6 Detailed Maintenance Reports

	Instrument / Device / Document no.		Instrument / Device / Document no.
1	Anexo DMA	7	NA
2	NA	8	NA
3	NA	9	NA
4	NA	10	NA
5	NA	11	NA
6	NA	12	NA

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DSA 5000 M, Soft Drink Analyzer M, DMA 4500 ME

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1 Condition Before Maintenance

Assess the condition of the instrument before any adjustment work.

TIP: *In this report "n/a" stands for "not applicable" or "not used". Soft Drink Analyzer M is abbreviated to SDA M.*

Environmental / Equipment Condition

			Comments
Ambient temperature:	22.4	°C	Dentro de especificaciones
Checked with testing device no.:	1		Revisado con equipo #1
Air humidity:	35.2	%	Dentro de especificaciones
Checked with testing device no.:	2		Revisado con equipo #2
Visual appearance of density cell OK?	☒ yes ○ no ○ n/a		Se observa mancha dentro de la celda

Incoming Inspection

Performed with Anton Paar ultra-pure water, mat. no. 96044, for density and sound velocity (if applicable). For pressurized systems or systems equipped with a peristaltic pump, or if the system requires sample volumes of more than 10 mL, you may use ultra-pure water of a different make.

Density ☐ n/a

Calibration medium no.	Temperature reading		Reference value (acc. to literature)		Measured value		Deviation		Result within specification?[a]
1	20.00	°C	0.9982	g/cm³	0.9982	g/cm³	0.0000	g/cm³	☒ yes ○ no

a. *Max. permissible error (under ideal conditions and for low densities/viscosities; the specified values are based on the uncertainty of the used ultra-pure water at 20 °C (68 °F) and the accuracy of the respective instrument type):*
DMA 4100 M / DMA 4101: ±0.0001 g/cm³
DMA 4500 M / DMA 4500 ME / DMA 4501 / DMA 4501 Diet: ±0.00005 g/cm³
DMA 5000 M / DMA 5001 / DSA 5000 M / SDA M: ±0.00002 g/cm³

Sound velocity ☒ n/a

(only DSA 5000 M / SDA M)

Calibration medium no.	Temperature reading		Reference value (acc. to literature)		Measured value		Deviation		Result within specification?[a]
NA	NA	°C	NA	m/s	NA	m/s	NA	m/s	○ yes ○ no

a. *Max. permissible error (under ideal conditions and for low densities/viscosities):*
DSA 5000 M / SDA M: ±0.5 m/s

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Temperature

Testing device no.	Cell temperature		Reference temperature		Deviation		Result(s) within specification?[a]
3	20.00	°C	19.97	°C	0.03	°C	☒ yes ☐ no

a. *Max. permissible error*

for instruments with DSP-SAC electronics:
DMA 4100 M: ±0.05 °C (0.09 °F)
DMA 4500 M / DMA 4500 ME: ±0.03 °C (0.05 °F)
DMA 5000 M / DSA 5000 M / SDA M: ±0.01 °C (0.02 °F)

for instruments with SCU electronics:
DMA 4100 M / DMA 4101: ±0.03 °C (0.05 °F)
DMA 4500 M / DMA 4501: ±0.02 °C (0.04 °F)
DMA 5000 M / DMA 4501 Diet / DMA 5001 / DSA 5000 M / SDA M: ±0.01 °C (0.02 °F)

2 Checks, Adjustments, and Calibrations

Checks

	yes	no	n/a	Comments
Correct function of the air pump:	☒	☐	☐	Funcionando
Correct function of the serial interface:	☐	☐	☒	No se utiliza
Correct function of the Ethernet interface:	☐	☐	☒	No se utiliza
Correct function of the VGA interface: *(only DMA M series / DSA 5000 M / SDA M)*	☐	☐	☒	No se utiliza
Correct function of the USB interfaces:	☐	☐	☒	No se utiliza
Correct function of the CAN interface:	☐	☐	☒	No se utiliza
Correct function of the fan:	☒	☐	☐	Funcionando
Correct function of the keys on the front panel: *(only DMA M 6.4" display version)*	☐	☐	☒	N/A
Date and time settings correct?	☒	☐	☐	Acordes a la fecha y hora actual
Backup file saved	☒		☐	Realizado
Leak tightness test successful?	☒	☐	☐	Realizado

Calibration and Adjustment of Instrument Features

	yes	no	n/a	Comments
Touch screen calibration performed: *(only DMA M 6.4" display version)*	☐	☐	☒	N/A
Camera calibration performed: *(not applicable for DMA 4100 M with 6.4" display)*	☐	☐	☒	No necesario
Atmospheric pressure sensor adjustment performed: *(deviation to reference ≤ 1 %)*	☒	☐	☐	955.9 hPa
Checked with testing device no.:	4			Revisado con equipo #4

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Cleaning the Measuring Cell(s)

Cleaning performed:	☒ done
Cleaning agent:	Jabon, agua y alcohol

Temperature

Temperature adjustment

Temperature adjustment performed:	○ yes, customer informed ⊗ no, not necessary
Performed with testing device no.:	3

Temperature calibration ☒ n/a

Testing device no.	Cell temperature		Reference temperature		Deviation		Result(s) within specification?[a]
N/A	N/A	°C	N/A	°C	N/A	°C	⊗ yes ○ no

a. *Max. permissible error*

for instruments with DSP-SAC electronics:
DMA 4100 M: ±0.05 °C (0.09 °F)
DMA 4500 M / DMA 4500 ME: ±0.03 °C (0.05 °F)
DMA 5000 M / DSA 5000 M / SDA M: ±0.01 °C (0.02 °F)

for instruments with SCU electronics:
DMA 4100 M / DMA 4101: ±0.03 °C (0.05 °F)
DMA 4500 M / DMA 4501: ±0.02 °C (0.04 °F)
DMA 5000 M / DMA 4501 Diet / DMA 5001 / DSA 5000 M / SDA M: ±0.01 °C (0.02 °F)

Density

Air/water adjustment

Air/water adjustment performed:	⊗ yes, customer informed ○ no, not necessary / not allowed
Performed with adjustment medium no.:	2

Density calibration with certified standard(s) ☐ n/a

Calibration medium no.	Cell temperature		Reference value		Measured value		Deviation[a]	
2	20.00	°C	0.9982	g/cm³	0.9982	g/cm³	0.0000	g/cm³
2	20.00	°C	0.9982	g/cm³	0.9982	g/cm³	0.0000	g/cm³
2	20.00	°C	0.9982	g/cm³	0.9982	g/cm³	0.0000	g/cm³
2	20.00	°C	0.9982	g/cm³	0.9982	g/cm³	0.0000	g/cm³
2	20.00	°C	0.9982	g/cm³	0.9982	g/cm³	0.0000	g/cm³

a. *For the determination of the allowed maximum deviation refer to XDLIQ006EN.*

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Density calibration with reference liquid(s) ☒ n/a

Calibration medium no.	Cell temperature		Reference value		Measured value		Deviation	
NA	NA	°C	NA	g/cm³	NA	g/cm³	NA	g/cm³
NA	NA	°C	NA	g/cm³	NA	g/cm³	NA	g/cm³
NA	NA	°C	NA	g/cm³	NA	g/cm³	NA	g/cm³
NA	NA	°C	NA	g/cm³	NA	g/cm³	NA	g/cm³
NA	NA	°C	NA	g/cm³	NA	g/cm³	NA	g/cm³

Sound Velocity

Sound velocity calibration with reference liquid(s) ☒ n/a

Calibration medium no.	Cell temperature		Reference value		Measured value		Deviation	
NA	NA	°C	NA	m/s	NA	m/s	NA	m/s
NA	NA	°C	NA	m/s	NA	m/s	NA	m/s
NA	NA	°C	NA	m/s	NA	m/s	NA	m/s
NA	NA	°C	NA	m/s	NA	m/s	NA	m/s
NA	NA	°C	NA	m/s	NA	m/s	NA	m/s

Diet

Diet adjustments ☒ n/a

Diet process water adjustment performed:	☐ yes, customer informed ☐ no, not necessary / not allowed
Performed with adjustment medium no.:	NA

Diet concentration adjustment performed:	☐ yes, customer informed ☐ no, not necessary / not allowed
Performed with adjustment medium no.:	NA

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3 Electrical Safety Test

According to DIN VDE 0701-1:2000, Anton Paar GmbH Document No. T50V104

☒ n/a

Locally required?	☐ yes ☐ no

	Target value	Actual value		yes	no	n/a
Visual inspection satisfactory:				☐	☐	☐
Impedance of protective bonding (R):	< 0.3 Ω	NA	Ω	☐	☐	☐
Insulation resistance (R):	> 1 MΩ	NA	MΩ	☐	☐	☐
Equivalent leakage current (I):	< 3.5 mA	NA	mA	☐	☐	☐
Checked with testing device no.:	NA					

Comments

El equipo se encuentra en condiciones adecuadas de cuidado.
Se recomienda un buen proceso de lavado cuando se empiecen a usar muestras azucaradas dado que el cliente menciona interes en medir este tipo de muestras en un futuro.

Se finaliza el servicio dejando el equipo listo para funcionar.