



Title: Monitoring of Particulate Matter (PM) Emissions

Permit Number: EPR/BP3790CG
Operator: Unimetals Recycling (UK) Ltd
Installation: A1 Emissions Control System Exhaust (New Stack)
Monitoring Dates: 12 September 2025

Reference Number: EI/10869

Client Organisation: Unimetals Recycling (UK) Ltd
 Address: Harrimans Lane
 Dunkirk
 Nottingham
 NG7 2SD

Monitoring Organisation: CES Environmental Instruments Ltd
 Address: Bretby Business Park
 Ashby Road
 Burton on Trent
 Staffordshire
 DE15 0YZ

Date of Report: 10 October 2025

Report Prepared By: Paul Broxham
 MCERTS Registration Number: MM 13 1254 (Level 2, TE1, TE2, TE3, TE4)

Signed: 

Report Approved By: Robert Allen
 MCERTS Registration Number: MM 02 009 (Level 2, TE1, TE2, TE3, TE4)

Signed: 

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Part 1: Executive Summary

1.1 Monitoring Objectives

Unimetals Recycling (UK) Ltd placed a contract with CES Environmental Instruments Ltd for the compliance check monitoring of emissions to air from the A1 Emissions Control System Exhaust (New Stack).

A1 Emissions Control System Exhaust (New Stack)

Treatment consisting only of shredding and granulation of ferrous and non-ferrous metals for recovery.

The test work was undertaken on 12 September 2025 by CES Environmental Instruments Ltd Engineers and carried out as part of CES Environmental Instruments Ltd job reference EI/10869.

The substances monitored were:-

Particulate Matter

On the day of testing there were no special requirements for the monitoring.

1.2 Monitoring Results

Emission Point Reference: A1 Emissions Control System Exhaust (New Stack)

| Substance to be Monitored | Emission Limit Value | Periodic Monitoring Result | Uncertainty of Measurement (95% CI) | Blank Result | Units | Reference Conditions | Emission Rate | Date of Sampling | Start and End Times | Monitoring Method Reference | Accreditation for use of Method | Operating Status |
|---------------------------|----------------------|----------------------------|-------------------------------------|--------------|-------------------|----------------------|---------------|-------------------|---------------------|-----------------------------|---------------------------------|------------------|
| Particulate Matter | 20 | 0.10 | 0.15 | 0.04* | mg/m ³ | 273K, 101.3kPa | 0.003kg/hr | 12 September 2025 | 09:11-12:21 | BS EN 13284-1 | UKAS & MCERTS | Normal Operation |

* Indicates where a value less than the limit of detection of the weighing procedure (0.09mg) has been reported, the value lies between the detection limit and zero. A value of half the limit of detection (0.045mg) has been used to calculate the concentration.

1.3 Operating Information

Emission Point Reference: A1 Emissions Control System Exhaust (New Stack)

| Process Type | Batch Sample Details | Fuel | Product | Load | Abatement |
|--------------|----------------------|------------|-------------|------------------|------------------------|
| Continuous | - | Light Iron | Scrap Metal | Normal Operation | Cyclone and Bag Filter |

| Comparison of Operator Continuous Emissions Monitoring Systems (CEMS) and Periodic Monitoring Results | | | | | | | | |
|---|----------------------|----------------------------|-------------------------------------|-------|----------------------|------------------|---------------------|--------------|
| Substance to be Monitored | Emission Limit Value | Periodic Monitoring Result | Uncertainty of Measurement (95% CI) | Units | Reference Conditions | Date of Sampling | Start and End Times | CEMS Results |
| No CEMS Installed | | | | | | | | |

1.4 Monitoring Deviations

None.

Part 2: Supporting Information

Appendix 1 General Information

CES Environmental Instruments Ltd staff details

| Name | Role | MCERT Registration Number | Level 1 | Level 2 | TE1 | TE2 | TE3 | TE4 | At site |
|--------------|-------------|---------------------------|----------|----------|----------|----------|----------|----------|---------|
| Paul Broxham | Team Leader | MM 13 1254 | | ✓ | ✓ | ✓ | ✓ | ✓ | T |
| | | | | Feb 2030 | Feb 2030 | Feb 2030 | Nov 2029 | Nov 2029 | |
| Adam Orme | Technician | MM 04 530 | ✓ | | | | | | ✓ |
| | | | Mar 2026 | | | | | | |

T = Nominated Team Leader on Site

CES Environmental Instruments Ltd method details

| Pollutant | Method | CES Procedure |
|--------------------|---------------|---------------|
| Particulate Matter | BS EN 13284-1 | WI 4/1 |

Monitoring Equipment Used

Gravimat & Probe

CES Environmental Instruments Ltd Reference: C193

Appendix 2

Diagrams of Emission Point

Sampling Location

| Dimensions | Cross Sectional Area | Orientation | Sample Ports Available/Used | Sampling Positions Per Plane | Standard |
|--|----------------------|-------------|-----------------------------|------------------------------|-------------|
| Dia 1000mm | 0.786m ² | Vertical | PM = 2/2 | 8 | BS EN 15259 |
| <p>Comments: Sample ports: 2 off 4" BSP sockets.</p> <p>Sample times are calculated from the total sample time equally divided by the no. of sample positions per plane. The minimum sample time per position is 3 minutes.</p> <p>Sample positions calculated using the Tangential method for circular ducts</p> <p>Pitot Traverse Along line A and B at positions consistent with BS EN 15259 these positions are: 6.7%, 25.0%, 75.0%, 93.3%</p> <p>Sample Positions Along line A and B at as many of the positions required within the standard method as can be achieved given the clearance limitations behind each socket. BS EN 15259 requires sampling at 8 points (4 on each of two lines) these positions are: 6.7%, 25.0%, 75.0%, 93.3%</p> | | | | | |
| | | | | Yes | No |
| Has homogeneity test been carried out? | | | | | ✓ |
| If Yes - Is stack gas homogenous? | | | | - | - |
| Any physical or regulatory restrictions regarding usage of equipment? N/A | | | | | |

| Compliance with BS EN 15259 / EA TGN M1 | Yes | No |
|---|-----|----|
| Does the sample plane comply upstream? | ✓ | |
| Does the sample plane comply downstream? | ✓ | |
| Are the appropriate sample ports fitted? | ✓ | |
| Do the stack gas velocity / temperature profiles comply? | ✓ | |
| Minimum platform area >5m² | ✓ | |



Appendix 3
Particulate Matter (Sampling Measurement & Results)

Site : Unimetals Recycling UK Ltd - Nottingham
Date : 12 September 2025
Plant : A1 Emissions Control System Exhaust
File Ref. : 10869

Mean Particulate Results

| Filter | Time | mg/m ³ (Actual Conditions) | m ³ /hr | mg/Nm ³ (Reference Conditions) | Nm ³ /hr | kg/hr |
|--------|-------------|--|--------------------|--|---------------------|-------|
| 642013 | 09:11-10:12 | 0.09 | 34380 | 0.10 | 30725.0 | 0.003 |
| 642193 | 10:15-11:17 | 0.05 | 34380 | 0.06 | 30556.0 | 0.002 |
| 64140 | 11:18-12:21 | 0.13 | 32576 | 0.14 | 28889.0 | 0.004 |
| | Mean | 0.09 | 33779 | 0.10 | 30056.7 | 0.003 |

Control Blank Filter

| Filter | Volume (m ³) |
|--------|--|
| 642013 | 1.259 |
| 642193 | 1.251 |
| 64140 | 1.190 |
| | 1.233 (Reference Conditions with no correction for Oxygen) |

Filter 64400

Tare Weight 16865.79 mg
Gross Weight 16865.84 mg *
Gain 0.04 mg
Measured Oxygen %
Concentration 0.04 mg/Nm³

Results Correct to

| Temperature | Pressure | Oxygen | Gas |
|-------------|------------|--------|---------|
| °C/K | mbar/kPa | % | Wet/Dry |
| 0/273 | 1013/101.3 | | Wet |

* Indicates where a value less than the limit of detection of the weighing procedure (0.09mg) has been reported, the value lies somewhere between the detection limit and zero. A value of half the limit of detection (0.045mg) has been used to calculate the concentration.

Velocity Results

| | Time | m/s |
|---------------|-------------|--------------|
| Test 1 | 09:11-10:12 | 12.10 |
| Test 2 | 10:15-11:17 | 12.10 |
| Test 3 | 11:18-12:21 | 11.50 |
| | Mean | 11.90 |

protocol simultaneous isokinetic extraction measurement

collector-no. 2013
 engineer AO/PB
 plant name A1 Emissions Control System
 place Unimetals Nottingham
 remarks Normal Operations
 Diameter=1000mm
 t1

operating parameter

normal density humid [kg / m³] : 1.27
 water vapour [%Vol] : 3
 ambient pressure [mbar] : 1009
 duct cross-section [m²] : 0.786

extraction parameter

change of meas. point [h:m:s] : 00:07:30
 points / axis : 4
 nozzles diameter [mm] : 6.4
 isokinetic factor : 1
 tare weight [mg] : 17711.79
 gross weight [mg] : 17711.92

evaluation

meas. time [h:m:s] : 00:59:60
 dust weight [mg] : 0.13

extracted partial volume
 actual conditions [m³] : 1.409
 in norm wet [Nm³] : 1.259
 in norm dry [Nm³] : 1.221

volume flow in duct
 actual conditions [m³/h] : 34380
 in norm wet [Nm³/h] : 30725
 in norm dry [Nm³/h] : 29803

dust concentration
 actual conditions [mg/m³] : 0.09
 in norm wet [mg/Nm³] : 0.10
 in norm dry [mg/Nm³] : 0.11

protocol simultaneous isokinetic extraction measurement

12/09/2025 09:11

12/09/2025 10:12

measured values table

| axis | depth | T_probe [°C] | v_duct [m/s] | angle [grd] | Q_act. [m³/h] | volume [m³] | meas. time [H:M:S] | p10 [mbar] | p40 [mbar] |
|------|-------|-----------------|-----------------|----------------|------------------|----------------|-------------------------|---------------|---------------|
| 1 | 1 | 29 | 12.1 | 0.0 | 1.43 | 0.178 | 00:07:30 | 1.00 | -38 |
| 1 | 2 | 31 | 12.1 | 0.0 | 1.40 | 0.175 | 00:07:30 | 1.00 | -38 |
| 1 | 3 | 31 | 12.1 | 0.0 | 1.40 | 0.175 | 00:07:30 | 1.00 | -38 |
| 1 | 4 | 31 | 12.2 | 0.0 | 1.41 | 0.176 | 00:07:30 | 1.00 | -39 |
| 2 | 1 | 32 | 12.2 | 0.0 | 1.41 | 0.176 | 00:07:30 | 1.00 | -39 |
| 2 | 2 | 32 | 12.1 | -0.1 | 1.40 | 0.176 | 00:07:30 | 1.00 | -39 |
| 2 | 3 | 33 | 12.2 | 0.0 | 1.41 | 0.176 | 00:07:30 | 1.00 | -39 |
| 2 | 4 | 33 | 12.2 | 0.0 | 1.41 | 0.177 | 00:07:30 | 1.00 | -40 |
| | | 32 | 12.1 | 0.0 | 1.41 | 0.176 | | 1.00 | -39 |

protocol simultaneous isokinetic extraction measurement

collector-no. 2193
 engineer AO/PB
 plant name A1 Emissions Control System
 place Unimetals Nottingham
 remarks Normal Operations
 Diameter=1000mm
 t2

operating parameter

normal density humid [kg / m³] : 1.27
 water vapour [%Vol] : 3
 ambient pressure [mbar] : 1010
 duct cross-section [m²] : 0.786

extraction parameter

change of meas. point [h:m:s] : 00:07:30
 points / axis : 4
 nozzles diameter [mm] : 6.4
 isokinetic factor : 1
 tare weight [mg] : 17828.9
 gross weight [mg] : 17828.97

evaluation

meas. time [h:m:s] : 00:59:60
 dust weight [mg] : 0.07

extracted partial volume
 actual conditions [m³] : 1.407
 in norm wet [Nm³] : 1.251
 in norm dry [Nm³] : 1.213

volume flow in duct
 actual conditions [m³/h] : 34380
 in norm wet [Nm³/h] : 30556
 in norm dry [Nm³/h] : 29639

dust concentration
 actual conditions [mg/m³] : 0.05
 in norm wet [mg/Nm³] : 0.06
 in norm dry [mg/Nm³] : 0.06

protocol simultaneous isokinetic extraction measurement

12/09/2025 10:15

12/09/2025 11:17

measured values table

| axis | depth | T_probe [°C] | v_duct [m/s] | angle [grd] | Q_act. [m³/h] | volume [m³] | meas. time [H:M:S] | p10 [mbar] | p40 [mbar] |
|------|-------|-----------------|-----------------|----------------|------------------|----------------|-------------------------|---------------|---------------|
| 1 | 1 | 33 | 12.2 | -0.7 | 1.40 | 0.176 | 00:07:30 | 1.00 | -41 |
| 1 | 2 | 33 | 12.2 | -0.4 | 1.41 | 0.177 | 00:07:30 | 1.00 | -41 |
| 1 | 3 | 33 | 12.2 | -0.4 | 1.41 | 0.177 | 00:07:30 | 1.00 | -41 |
| 1 | 4 | 33 | 12.2 | -0.6 | 1.41 | 0.176 | 00:07:30 | 1.00 | -41 |
| 2 | 1 | 33 | 12.1 | -0.6 | 1.40 | 0.175 | 00:07:30 | 1.00 | -41 |
| 2 | 2 | 33 | 12.1 | -0.6 | 1.40 | 0.175 | 00:07:30 | 1.00 | -41 |
| 2 | 3 | 33 | 12.1 | -0.6 | 1.40 | 0.176 | 00:07:30 | 1.00 | -41 |
| 2 | 4 | 34 | 12.1 | -0.7 | 1.40 | 0.175 | 00:07:30 | 1.00 | -41 |
| | | 33 | 12.1 | -0.6 | 1.40 | 0.176 | | 1.00 | -41 |

protocol simultaneous isokinetic extraction measurement

collector-no. 140
 engineer AO/PB
 plant name A1 Emissions Control System
 place Unimetals Nottingham
 remarks Normal Operations
 Diameter=1000mm
 t3

operating parameter

normal density humid [kg / m³] : 1.27
 water vapour [%Vol] : 3
 ambient pressure [mbar] : 1009
 duct cross-section [m²] : 0.786

extraction parameter

change of meas. point [h:m:s] : 00:07:30
 points / axis : 4
 nozzles diameter [mm] : 6.4
 isokinetic factor : 1
 tare weight [mg] : 17632.23
 gross weight [mg] : 17632.4

evaluation

meas. time [h:m:s] : 00:59:60
 dust weight [mg] : 0.17

extracted partial volume
 actual conditions [m³] : 1.342
 in norm wet [Nm³] : 1.190
 in norm dry [Nm³] : 1.154

volume flow in duct
 actual conditions [m³/h] : 32576
 in norm wet [Nm³/h] : 28889
 in norm dry [Nm³/h] : 28022

dust concentration
 actual conditions [mg/m³] : 0.13
 in norm wet [mg/Nm³] : 0.14
 in norm dry [mg/Nm³] : 0.15

protocol simultaneous isokinetic extraction measurement

12/09/2025 11:18

12/09/2025 12:21

measured values table

| axis | depth | T_probe [°C] | v_duct [m/s] | angle [grd] | Q_act. [m³/h] | volume [m³] | meas. time [H:M:S] | p10 [mbar] | p40 [mbar] |
|------|-------|-----------------|-----------------|----------------|------------------|----------------|-------------------------|---------------|---------------|
| 1 | 1 | 35 | 12.1 | -0.1 | 1.40 | 0.176 | 00:07:30 | 1.00 | -40 |
| 1 | 2 | 35 | 12.2 | -0.1 | 1.41 | 0.177 | 00:07:30 | 1.00 | -41 |
| 1 | 3 | 34 | 12.2 | -0.1 | 1.42 | 0.178 | 00:07:30 | 1.00 | -41 |
| 1 | 4 | 34 | 12.2 | 0.0 | 1.41 | 0.176 | 00:07:30 | 1.00 | -41 |
| 2 | 1 | 34 | 12.2 | 0.0 | 1.41 | 0.177 | 00:07:30 | 1.00 | -41 |
| 2 | 2 | 33 | 12.2 | 0.0 | 1.41 | 0.177 | 00:07:30 | 1.00 | -41 |
| 2 | 3 | 33 | 12.2 | -0.1 | 1.42 | 0.177 | 00:07:30 | 1.00 | -41 |
| 2 | 4 | 32 | 6.8 | -3.3 | 0.84 | 0.104 | 00:07:30 | 0.00 | -25 |
| | | 34 | 11.5 | -0.5 | 1.34 | 0.168 | | 0.88 | -39 |

Appendix 4 Calibration Certificates

Certificate of Calibration

Date of Issue: 6th January 2025

Certificate No. CES2583
page 1 of 2

CES Environmental Instruments Ltd
Bretby Business Park, Ashby Road
Burton-on-Trent, Staffordshire, DE15 0YZ
Tel: 01283 216334 Fax: 01283 550939


Certified By

Instrument Details

| | |
|-----------------------|------------------|
| Instrument Type | Gravimat SHC-502 |
| Instrument Make | Erwin Sick |
| Instrument Serial No. | 5218792 |
| Quality No. | C193 |
| Calibration Date | 06 01 2025 |
| Calibrated By Name | D.Woolley |

Ambient Conditions

| | |
|----------------------------|-----|
| Air Temperature (°C) | 23 |
| Barometric Pressure (mbar) | 987 |
| Relative Humidity (%) | 44 |

Instruments used to undertake calibration

| | | |
|----------------------|------------------------------|----------------|
| E Type Pitot | UKAS Certificate No. K55647V | (Qu. No. C136) |
| Manometer Type FC012 | UKAS Certificate No. 27318 | (Qu. No. C082) |
| Manometer Type FC012 | UKAS Certificate No. 27319 | (Qu. No. C081) |
| Barometer Type 104 | UKAS Certificate No. K55933P | (Qu. No. C138) |
| Gallus Dry Gas Meter | UKAS Certificate No. N037163 | (Qu. No. C333) |
| RIS Supercal XT | UKAS Certificate No. 10345 | (Qu. No. C014) |

Flow and Extraction

The reference pitot was placed in a wind tunnel located at Bretby Business Park. The Gravimat SHC-5 Sampling Probe under test was mounted within the same wind tunnel in close proximity to the reference pitot. The wind tunnel was operated to generate a differential pressure across each pitot, a direct comparison was made. The differential pressures measured were in the region of the calibration points of the reference pitot. Correction factors were applied to the reference pitot and compared to the differential pressure shown for the pitot under test. The extraction system of the unit was operated for a period of one minute.

Volume Flow

A calibrated dry gas meter was connected to the sampling nozzle of the Gravimat SCH-5. A volume of air is pulled through the sampling system. The measured value shown on the calibrated dry gas meter is then compared to the indicated value on the Gravimat SCH-5 display.

Barometric Pressure

The barometric pressure was measured using a calibrated barometer. The indicated pressure was compared to the Gravimat SHC-5 display.

Temperature

The probe thermocouple was placed in a thermocouple oven and heated. The temperature was measured using a calibrated thermocouple and temperature indicator. The resultant temperature was compared to the Gravimat SCH-5 display.

Current

A mA current source was injected into the Gravimat SCH-5 using a mA current generator. The injected current was compared to the Gravimat SCH-5 display.

Certificate of Calibration

Date of Issue: 6th January 2025

Certificate No. CES2583
page 2 of 2

CES Environmental Instruments Ltd
Bretby Business Park, Ashby Road
Burton-on-Trent, Staffordshire, DE15 0YZ
Tel: 01283 216334 Fax: 01283 550939


Certified By

Instrument Details

Instrument Type Gravimat SHC-502
Instrument Make Erwin Sick
Instrument Serial No. 5218792
Quality No C193
Calibration Date 06 01 2025

Ambient Conditions

Air Temperature (°C) 23
Barometric Pressure (mbar) 987
Relative Humidity (%) 44
Air Density @ 0°C (kg/m³) 1.277
Corrected Air Density (kg/m³) 1.203

Calibration Details

Flow and Extraction

| Applied Pressure (Pa) | Pitot Correction | Applied Pressure Corrected (Pa) | SMP502 (Calculated) (Pa) | Pressure Factor | Calculated Velocity (m/s) | SMP502 Velocity (m/s) | Velocity Factor |
|-----------------------|------------------|---------------------------------|--------------------------|-----------------|---------------------------|-----------------------|-----------------|
| 11.0 | 1.018 | 11.20 | 10.5 | 1.07 | 4.314 | 4.177 | 1.03 |
| 37.0 | 1.005 | 37.19 | 35.5 | 1.05 | 7.861 | 7.681 | 1.02 |
| 84.0 | 1.007 | 84.59 | 81.5 | 1.04 | 11.857 | 11.639 | 1.02 |
| 149.0 | 0.998 | 148.70 | 144.5 | 1.03 | 15.721 | 15.497 | 1.01 |
| 235.0 | 0.999 | 234.77 | 226.5 | 1.04 | 19.753 | 19.402 | 1.02 |
| 363.0 | 0.982 | 356.47 | 349.5 | 1.02 | 24.341 | 24.102 | 1.01 |
| 523.0 | 0.983 | 514.11 | 504.5 | 1.02 | 29.231 | 28.957 | 1.01 |

Volume Flow

| Nominal Flow Rate | Actual Flow Rate | Actual Flow Rate | Orifice Constant |
|-------------------------------------|------------------|------------------|------------------|
| l/min | l/min | m³/hr | |
| 10.0 | 9.475 | 0.190 | 12.536 |
| 15.0 | 14.720 | 0.294 | 13.200 |
| 20.0 | 19.830 | 0.397 | 13.335 |
| 25.0 | 23.890 | 1.433 | 13.449 |
| 30.0 | 30.600 | 0.612 | 13.719 |
| ment Orifice Constant (@1.5m³/hr) = | | | 13.449 |

Barometric Pressure

| Pressure | |
|-----------------------|------------------------|
| Required Value (mbar) | Indicated Value (mbar) |
| 987.0 | 987.0 |
| 1000.0 | 1000.0 |
| 1021.0 | 1021.0 |

Temperature

| Temperature Input | |
|---------------------|----------------------|
| Required Value (°C) | Indicated Value (°C) |
| 25.0 | 25.0 |
| 50.0 | 49.9 |
| 100.0 | 100 |
| 150.0 | 150.2 |
| 250.0 | 250.1 |
| 300.0 | 300.0 |

Current

| Current Value | |
|---------------------|----------------------|
| Required Value (mA) | Indicated Value (mA) |
| 0.0 | 0.0 |
| 5.0 | 5.0 |
| 10.0 | 10.0 |
| 15.0 | 15.0 |
| 20.0 | 20.0 |

Time

| Time Period mins | Required Value mins | Within Limit |
|------------------|---------------------|--------------|
| 3:00 | 2:59 → 3:01 | Yes |
| 5:00 | 4:59 → 5:01 | Yes |
| 10:00 | 9:59 → 10:01 | Yes |

Appendix 5

Uncertainty Calculations

Uncertainty calculation for EN 13284 Determination of low range mass concentration of dust, Manual Gravimetric Method

| | | | |
|------------------------|---|------------------|-------------|
| Limit value (ELV) | 20 mg.m ⁻³ | Reference oxygen | % by volume |
| Measured concentration | 0.14 mg.m ⁻³ (at reference conditions) | | |

Measurement Equation

$$c = \frac{m}{V} f_c$$

| Measured Quantities | Symbol | Value | Standard uncertainty | Units | Uncertainty as percentage | Uncertainty at lv | Requirement of std |
|---|------------------|-------|----------------------|----------------------|---------------------------|-------------------|--------------------|
| Sampled Volume | V _m | 1.19 | uV _m | 0.001 m ³ | 0.08 | | <=2% |
| Sampled gas Temperature | T _m | 273 | uT _m | 2 k | 0.73 | | <=1% |
| Sampled gas Pressure | ρ _m | 101.3 | uρ _m | 0.1 kPa | 0.10 | | <=1% |
| Sampled gas Humidity | H _m | 0 | uH _m | 1 % by volume | 1.00 | | <=1% |
| Oxygen content | O _{2,m} | | uO _{2,m} | 0.1 % by volume | #DIV/0! | | <=5% |
| Mass particulate | m | 0.17 | um | 0.09 mg | 52.94 | 0.38 | <5% of limit value |
| Note - Sampled gas humidity, temperature and pressure are values at the gas meter | | | | | | | |
| Leak | L | 2 | | % | 2.00 | | <=2% |
| Uncollected Mass (Instack filter - no rinse) | UCM | 0.01 | | mg | 5.882352941 | | <=10% |

| Intermediate calculations | | | | |
|---------------------------|------------------|-------------------|--------------------|--|
| Factor for std conds | fs | 1.00 | | |
| uncertainty components | symbol | sensitivity coeff | u (in units of fs) | |
| | ρ _m | 0.010 | 0.001 | $f_s = \frac{(100 - H_m) 273}{100 T_m} \frac{\rho_m}{101.3}$ |
| | H _m | 0.010 | 0.010 | |
| | T _m | 0.004 | 0.007 | |
| | ufs | | 0.012 | |
| Corrected volume | V | 1.19 | uV | 0.015 m ³ |
| | | | | 1.25 |
| Factor for O2 correction | fc | 1.00 | | |
| uncertainty components | symbol | sensitivity coeff | u | |
| | O _{2,m} | 0.05 | 0.005 | $f_c = \frac{21 - O_{2,ref}}{21 - O_{2,m}}$ |
| Factor for O2 Correction | ufc | 1.00 | | 0.005 |
| | | | | 0.48 |

| Parameter | Value | Units | Sensitivity coeff | Uncertainty contribution | Uncertainty as % |
|--|-------|-------------------------|---------------------|-------------------------------|--|
| Corrected Volume (standard cc) | V | 1.19 m ³ | 0.12 | 0.00 mg.m ⁻³ | 1.25 % |
| Mass | m | 0.17 mg | 0.84 | 0.08 mg.m ⁻³ | 52.94 % |
| Factor for O2 Correction | fc | 1.00 | 0.14 | 0.00 mg.m ⁻³ | 0.48 % |
| Leak | L | 0.00 mg.m ⁻³ | 1.00 | 0.00 mg.m ⁻³ | 1.15 % |
| Uncollected mass | UCM | 0.01 mg | 0.84 | 0.00 mg.m ⁻³ | 3.40 % |
| Combined measurement uncertainty | | | | 0.08 mg.m⁻³ | |
| Expanded uncertainty as percentage of measured value | | 106.16 | % measured of value | | expressed with a level of confidence of 95% (Using a coverage factor k=2) |
| Expanded uncertainty in units of measurement | | 0.15 | mg.m ⁻³ | | |
| Expanded uncertainty as percentage of limit value | | 0.76 | % ELV | | |

Verified