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Stack Emissions Testing Report Commissioned by
Duynie Ingredients

Installation Name & Address
Duynie Ingredients
Coed Abden Road
Wrexham Industrial Estate
Wrexham
LL13 9UH

Stack Reference
Dust Extractor 2

Dates of the Monitoring Campaign
25th - 26th September 2025

Job Reference Number
EMT14377

Report Written by
Stephen Taylor Team Leader MCERTS Level 2 MM 23 1803 TE1 TE3 & TE4

Report Approved by
Donal O Faogain Technical Report Writer MCERTS Level 2 MM13 1259 TE1 TE2 TE3 TE4

Report Date
8th October 2025

Version
Version 1

Signature of Report Approver


CONTENTS

Opinions and interpretations expressed herein are outside the scope of Element's ISO 17025 accreditation.

MONITORING OBJECTIVES

Duynie Ingredients , Wrexham
Dust Extractor 2
25th - 26th September 2025

Overall Aim of the Monitoring Campaign

Element were commissioned by Duynie Ingredients to carry out stack emissions testing on the Dust Extractor 2 at Wrexham.

The aim of the monitoring campaign was to perform testing, as requested by the customer, for a number of prescribed pollutants. There are no emission limits set for any of the pollutants at this time.

Special Requirements

There were no special requirements.

Target Parameters

Total Particulate Matter

MONITORING RESULTS

Duynie Ingredients , Wrexham
Dust Extractor 2
25th - 26th September 2025

where MU = Measurement Uncertainty associated with the Result

	Concentration				Mass Emission			
Parameter	**Units**	**Result**	**MU +/-**	**Limit**	**Units**	**Result**	**MU +/-**	**Limit**
Total Particulate Matter [1]	mg/m³	0.69	0.29	-	g/hr	1.4	0.61	-
Water Vapour	% v/v	0.82	0.05					
Stack Gas Temperature	°C	41.0						
Stack Gas Velocity	m/s	9.7	0.65					
Volumetric Flow Rate (ACTUAL)	m³/hr	2303	186					
Volumetric Flow Rate (REF) [1]	m³/hr	2030	164					

NOTE: VOLUMETRIC FLOW RATE & VELOCITY DATA TAKEN FROM AN AVERAGE OF ALL OF THE ISOKINETIC RUNS.

[1] Reference Conditions (REF) are: 273K, 101.3kPa, without correction for water vapour content.

MONITORING DATE(S) & TIMES

Duynie Ingredients , Wrexham
Dust Extractor 2
25th - 26th September 2025

Parameter		Units	Concentration	Units	Mass Emission	Sampling Date(s)	Sampling Times	Duration mins
Total Particulate Matter	R1	mg/m³	0.69	g/hr	1.4	25/09/2025	15:50 - 16:50	60
Velocity Traverse	R1					25/09/2025	15:32 - 15:39	

All results are expressed at the respective reference conditions.

PROCESS DETAILS

Duynie Ingredients , Wrexham
Dust Extractor 2
25th - 26th September 2025

Standard Operating Conditions

Parameter	Value
Process Status	Normal Operating Conditions
Capacity (of 100%) and Tonnes / Hour	Normal Operation
Continuous or Batch Process	Continuous
Feedstock (if applicable)	Extraction
Abatement System	N/A
Abatement System Running Status	N/A
Fuel	N/A
Plume Appearance	None Visable

MONITORING & ANALYTICAL METHODS

Duynie Ingredients , Wrexham
Dust Extractor 2
25th - 26th September 2025

	Monitoring				Analysis					
Parameter	**Standard**	**Technical Procedure**	**Sampling Status**	**Testing Lab**	**Analytical Procedure**	**Analytical Technique**	**Analysis Status**	**Analysis Lab**	**Overall Status**	**LOD (Average)**
Total Particulate Matter	EN 13284-1	MD 001	MCERTS	EET	MD 103	Gravimetric	MCERTS	EET	MCERTS	0.15 mg/m³
Water Vapour	EN 14790	MD 005	MCERTS	EET	MD 005	Gravimetric	MCERTS	EET	MCERTS	0.10 % v/v
Velocity & Vol. Flow Rate	EN 16911-1 (MID)	MD 041	MCERTS	EET	Pitot Tube and Thermocouple				MCERTS	3.3 m/s

ANALYSIS LABORATORIES

(with short name reference as appears in the table above)

Element (Stockport Lab - EET)	ISO 17025 Accreditation Number: UKAS 4279

SUMMARY OF SAMPLING DEVIATIONS

Parameter	Run	Deviation
All	1	There are no deviations associated with the sampling employed.

SUITABILITY OF SAMPLING LOCATION

Duct Characteristics

Parameter	Units	Value
Type	-	Circular
Depth	m	0.29
Width	m	-
Area	m²	0.07
Port Depth	cm	7
Orientation of Duct	-	Vertical
Number of Ports	-	1
Sample Port Size	-	4" BSP

Location of Sampling Platform

General Platform Information	Value
Permanent / Temporary Platform	Scissor Lift
Inside / Outside	Inside

Platform Details

EA Technical Guidance Note M1 / EN 15259 Platform Requirements	Value
Sufficient working area to manipulate probe and operate the measuring instruments	Yes
Platform has 2 levels of handrails (approx. 0.5m & 1.0m high)	N/A
Platform has vertical base boards (approx. 0.25m high)	N/A
Platform has chains / self closing gates at top of ladders	N/A
There are no obstructions present which hamper insertion of sampling equipment	No
Safe Access Available	Yes
Easy Access Available	Yes

Sampling Location / Platform Improvement Recommendations

The sampling location meets all the requirements specified in EA Guidance Note M1 and EN 15259, and therefore there are no improvement recommendations.

EN 15259 Homogeneity Test Requirements

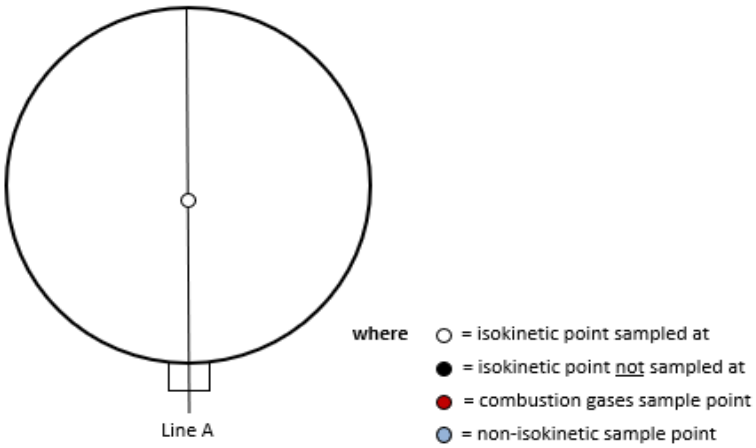
There is no requirement to perform a EN 15259 Homogeneity Test on this Stack.

Sampling Plane Validation Criteria (from EN 15259)

Criteria in EN 15259	Units	Traverse 1	Required	Compliant
Lowest Differential Pressure	Pa	104.0	> 5 Pa	Yes
Mean Velocity	m/s	11.34	-	-
Lowest Gas Velocity	m/s	11.34	-	-
Highest Gas Velocity	m/s	11.34	-	-
Ratio of Above	: 1	1.00	< 3 : 1	Yes
Maximum Angle of Swirl	°	9.00	< 15°	Yes
No Local Negative Flow	-	Yes	-	Yes

PLANT PHOTOS

SAMPLE POINTS



APPENDIX CONTENTS

STACK EMISSIONS MONITORING PERSONNEL

Position	Name	MCERTS Accreditation	MCERTS Number	Technical Endorsements
Team Leader	Stephen Taylor	MCERTS Level 2	MM 23 1803	TE1 TE3 & TE4
Technician	Tom Dixon	MCERTS Level 1	MM 23 1802	TE1

LIST OF EQUIPMENT

Extractive Sampling	
Equipment Type	**Equipment I.D.**
Control Box DGM (1)	CAT 7.95
Control Box DGM (2)	-
Box Thermocouples (1)	CAT 3.31
Box Thermocouples (2)	-
Umbilical (1)	CAT 3.31
Umbilical (2)	-
Oven Box (1)	-
Oven Box (2)	-
Heated Probe 0.5m	-
Heated Probe 1.0m	CAT 5.64
Heated Probe 1.5m	-
S-Pitot (1) - Coef .838	CAT 21P.134
S-Pitot (2) - Coef .844	CAT 21S.71
L-Pitot - Coef .993 (4.1931)	-
Site Balance	CAT 17.108
500g / 1Kg Check Weights	CAT 17.108
Last Impinger Arm	-
Callipers	CAT 23.53
Tubes Kit Thermocouple	-

Instrumental Analysers	
Equipment Type	**Equipment I.D.**
Horiba PG-250	-
Horiba PG-250	-
Servomex 4900	-
Eco Physics CLD 822Mh	-
ABB AO2020-URAS26	-
Testo 350 XL	-
JCT JCC P1 Cooler	-
Gasmet DX4000	-
Gasmet Sampling System	-
Sick 3006	-
M&C PSS	-
Mass Flow Controller (1)	-
Mass Flow Controller (2)	-
Mass View (1)	-
Mass View (2)	-
Hioki 5043 (V)	-
Easylogger EN-EL-12 Bit	-
Bioaerosols Temperature Logger	-
Electronic Refrigerator	-

Miscellaneous Items	
Equipment Type	**Equipment I.D.**
Digital Manometer 500	CAT 3.224
Digital Manometer 10000	-
Digital Temperature Meter	-
Stopwatch	CAT 14.98
Barometer	CAT 13.62
Stack Thermocouple 0.5m	CAT 4.1901
Stack Thermocouple 1.0m	-
Stack Thermocouple 1.5m	-
1m Heated Line (1)	-
1m Heated Line (2)	-
1m Heated Line (3)	-
5m Heated Line (1)	-
15m Heated Line (1)	-
20m Heated Line (1)	-
20m Heated Line (2)	-
Dual Channel Heater Controller	-
Single Channel Heater Controller	-
Laboratory Balance	CAT 1.18, 1.18a, 1.18b
Tape Measure	CAT 16.58

METHODS & TECHNICAL PROCEDURES USED

Parameter	Standard	Technical Procedure
Total Particulate Matter	EN 13284-1	MD 001
Water Vapour	EN 14790	MD 005
Velocity & Vol. Flow Rate	EN 16911-1 (MID)	MD 041

PRELIMINARY STACK SURVEY: CALCULATIONS

General Stack Details

Stack Details (from Traverse)	Units	Value
Stack Diameter / Depth, D	m	0.29
Stack Width, W	m	-
Stack Area, A	m^2	0.07
Average Stack Gas Temperature, T_a	°C	42.2
Average Stack Gas Pressure	Pa	104.0
Average Stack Static Pressure, P_{static}	kPa	0.027
Average Barometric Pressure, P_b	kPa	102.8
Average Pitot Tube Calibration Coefficient, C_p	-	0.84

Stack Gas Composition & Molecular Weights

Component	Conc ppm	Conc Dry % v/v	Conc Wet % v/v	Volume Fraction r	Molar Mass M	Density kg/m^3 p	Conc kg/m^3 p_i
CO_2 (Estimated)	-	0.06	0.06	0.0006	44.01	1.9635	0.00118
O_2 (Estimated)	-	20.80	20.63	0.2080	32.00	1.4277	0.29696
N_2	-	79.14	78.49	0.7914	28.01	1.2498	0.98913
Moisture (H_2O)	-	-	0.82	0.0082	18.02	0.8037	0.00660

Where: $p = M / 22.41$

$p_i = r \times p$

Calculation of Stack Gas Densities

Determinand	Units	Result
Dry Density (STP), P_{STD}	kg/m^3	1.287
Wet Density (STP), P_{STW}	kg/m^3	1.283
Dry Density (Actual), P_{Actual}	kg/m^3	1.132
Average Wet Density (Actual), $P_{ActualW}$	kg/m^3	1.128

Where: P_{STD} = sum of component concentrations, kg/m^3 (not including water vapour)

P_{STW} = sum of all wet concentrations / 100 x density, kg/m^3 (including water vapour)

$P_{Actual} = P_{STD} \times (T_{STP} / (P_{STP})) \times ((P_{static} + P_b) / T_a)$

$P_{ActualW}$ (at each sampling point) $= P_{STW} \times (T_s / P_s) \times (P_a / T_a)$

Calculation of Stack Gas Volumetric Flowrate, Q

Duct gas flow conditions	Units	Actual	REF [1]
Temperature	°C	42.2	0.0
Total Pressure	kPa	102.8	101.3
Moisture	%	0.82	0.82

Gas Volumetric Flowrate (from Traverse)	Units	Result
Gas Volumetric Flowrate (Actual)	m^3/hr	2697
Gas Volumetric Flowrate (STP, Wet)	m^3/hr	2371
Gas Volumetric Flowrate (STP, Dry)	m^3/hr	2352
Gas Volumetric Flowrate REF [1]	m^3/hr	2371

PRELIMINARY STACK SURVEY: VELOCITY TRAVERSE TO EN 16911-1 (MID)

(1 of 1)

Parameter	Units	Value
Date of Survey	-	25/09/2025
Time of Survey	-	15:32 - 15:39
Atmospheric Pressure	kPa	102.8
Average Stack Static Pressure	Pa	27
Result of Pitot Stagnation Test	-	Pass
Are Water Droplets Present?	-	No
Device Used	S-Type Pitot with KIMO MP 210 (10000Pa)	

Parameter	Units	Value
Initial Pitot Leak Check	-	Pass
Final Pitot Leak Check	-	Pass
Orientation of Duct	-	Vertical
Pitot Tube, C_p	-	0.84
Number of Lines Available	-	1
Number of Lines Used	-	1

Sampling Line A

Traverse Point	Depth m	ΔP Pa	Temp °C	Wet Density kg/m³	Velocity m/s	Swirl °
STATIC (Units: Pa)		*27.0*				
Mean		**104.0**	**42.2**	**1.128**	**11.34**	
1	0.15	104.0	42.2	1.128	11.34	9.0

PRELIMINARY STACK SURVEY: VELOCITY TRAVERSE TO EN 16911-1 (MID) - MEASUREMENT UNCERTAINTY

(1 of 1)

Performance characteristics (Uncertainty Components)	Uncertainty	Value	Units
Standard Uncertainty on the coefficient of the Pitot Tube	u(k)	0.005	-
Standard Uncertainty associated with the mean local dynamic pressures	u(Δpi)	6.062	Pa
- Resolution	u(res)	0.08677	
- Calibration	u(cal)	1.126	
- Drift	u(drift)	33.333	
- Lack of Fit	u(fit)	1.198	
- Overall corrections to dynamic measurements	u(Cf)	35.744	
Standard uncertainty associated with the molar mass of the gas	u(M)	0.00003	-
- $\varphi O_2,w$	-	20.629	
- $\varphi CO_2,w$	-	0.060	
- Oxygen, dry	u(ϕO_2,d)	0.637	
- Carbon Dioxide, dry	u(ϕCO_2,d)	0.002	
- Water Vapour	u(ϕH_2O)	0.042	
- Oxygen, wet	u(ϕO_2,w)	0.632	
- Carbon Dioxide, wet	u(ϕCO_2,w)	0.002	
Standard uncertainty associated with the stack temperature	u(Tc)	1.608	K
Standard uncertainty associated with the absolute pressure in the duct	u(pc)	175.797	Pa
- Atmospheric Pressure	u(patm)	175.692	
- Static Pressure	u(pstat)	6.062	
Standard uncertainty associated with the density in the duct	u(ρ)	0.00615	-
Standard uncertainty associated with the local velocities	u(vi)	0.387	Pa
Standard uncertainty associated with the mean velocity	u(v)	0.387	m/s
Standard uncertainty associated with the mean velocity (95% Confidence)	Uc(v)	0.759	m/s
Standard uncertainty associated with the mean velocity (95% Confidence), relative	Uc,rel(v)	6.69	%
Standard uncertainty associated with the volume flow rate (95% Confidence)	Uc(qV,w)	217.9	m^3/hr
- $u^2(a)/a^2$	-	0.00053	
- $u^2(qV,w)/q^2V,w$	-	0.00170	
- $u^2(qV,w)$	-	12362	
- $u(qV,w)$	-	111.2	
Standard uncertainty associated with the volume flow rate (95% Confidence), relative	Uc,rel(qV,w)	8.08	%

TOTAL PARTICULATE MATTER: RESULTS SUMMARY

Duynie Ingredients , Wrexham
Dust Extractor 2

Sample Runs

Parameter	Units	Run 1		Mean
Concentration	mg/m³	0.69		0.69
Uncertainty	±mg/m³	0.29		0.29
Mass Emission	g/hr	1.4		1.4
Uncertainty	±g/hr	0.6		0.6

Parameter	Units	Run 1		Mean
Water Vapour	% v/v	0.82		0.82
Uncertainty	±% v/v	0.05		0.05

Blank Runs

Parameter	Units	Blank 1		Maximum
Concentration	mg/m³	0.15		0.15

NOTE: Where the Balance Uncertainty / Limit of Detection is higher than the Blank concentration, the Balance Uncertainty / Limit of Detection concentration has been reported.

General Sampling Information

Parameter	Value	
Standard	EN 13284-1	
Technical Procedure	MD 001	
Probe Material	Titanium	
Filter Housing Material	Titanium	
Positioning of Filter	In Stack	
Filter Size and Material	47mm Glass Fibre	
Number of Sampling Lines Used	1 / 1	FORMAT: Number Used / Number Required
Number of Sampling Points Used	1 / 1	FORMAT: Number Used / Number Required
Sample Point I.D.'s	A1	

Reference Conditions

Reference Conditions are: 273K, 101.3kPa, without correction for water vapour content.

TOTAL PARTICULATE MATTER: ISOKINETIC SAMPLING CALCULATIONS

Test	Units	Run 1
Absolute pressure of stack gas, P_s		
Barometric pressure, P_b	mmHg	770.3
Stack static pressure, P_{static}	mmH_2O	2.8
$P_s = (P_b + (P_{static} / 13.6)$	mmHg	770.5
Volume of water vapour collected, V_{wstd}		
Total mass collected in impingers (liquid trap)	g	-2.2
Total mass collected in impingers (silica trap)	g	12.4
Total mass of liquid collected, V_{lc}	g	10.2
$V_{wstd} = (0.001246)(V_{lc})$	m^3	0.0127
Volume of gas metered dry, V_{mstd}		
Volume of gas sample through gas meter, V_m	m^3	1.5753
Gas meter correction factor, Y_d	-	1.0500
Average dry gas meter temperature, T_m	°C	27.2
Average pressure drop across orifice, ΔH	mmH_2O	77.6
$V_{mstd} = ((0.3592)(V_m)(P_b + (\Delta H/13.6))(Y_d)) / (T_m + 273)$	m^3	1.5358
Moisture content, B_{wo} & R_{wv}		
$B_{wo} = V_{wstd} / (V_{mstd} + V_{wstd})$	m^3	0.0082
B_{wo} as a percentage	% v/v	0.82
Reported Water Vapour, checked with Tables in EN 14790, Rwv	% v/v	0.82
Volume of gas metered wet, V_{mstw}		
$V_{mstw} = (V_{mstd})(100/(100 - R_{wv}))$	m^3	1.5485
Volume of gas metered at Oxygen Reference Conditions, $V_{mstd@X\%O_2}$ & $V_{mstw@X\%O_2}$		
IED & Incinerates Hazardous Material? (Yes = no positive O_2 correction)	-	No
% wet oxygen measured in gas stream, $ACT\%O_{2w}$	% v/v	N/A
% dry oxygen measured in gas stream, $ACT\%O_{2d}$	% v/v	N/A
% oxygen reference condition, $REF\%O_2$	% v/v	N/A
O_2 Reference Factor wet $(O_{2REFw}) = (21 - REF\%O_2) / (21 - ACT\%O_{2w})$	-	N/A
O_2 Reference Factor dry $(O_{2REFd}) = (21 - REF\%O_2) / (21 - ACT\%O_{2d})$	-	N/A
$V_{mstw@X\%oxygen} = (V_{mstw}) / (O_{2REFw})$	m^3	N/A
$V_{mstd@X\%oxygen} = (V_{mstd}) / (O_{2REFd})$	m^3	N/A
Molecular weight of dry gas stream, M_d		
CO_2 (Estimated)	% v/v	0.06
O_2 (Estimated)	% v/v	20.80
Total	% v/v	20.86
N_2	% v/v	79.14
$M_d = 0.44(\%CO_2)+0.32(\%O_2)+0.28(\%N_2)$	g/gmol	28.84
Molecular weight of stack gas (wet), M_s		
$M_s = M_d(1 - (R_{wv}/100)) + 18(R_{wv}/100)$	g/gmol	28.75
Velocity of stack gas, V_s		
Pitot tube velocity constant, K_p	-	34.97
Velocity pressure coefficient, C_p	-	0.85
Average of velocity heads, ΔP_{avg}	mmH_2O	7.46
Average square root of velocity heads, √ΔP	$\sqrt{mmH_2O}$	2.73
Average stack gas temperature, T_s	°C	41.0
$V_s = ((K_p)(C_p)(\sqrt{\Delta P})(\sqrt{T_s} + 273)) / (\sqrt{(M_s)(P_s)})$	m/s	9.69
Total flow of stack gas: Actual (Q_a), Wet (Q_{stw}), Dry (Q_{std}), Wet@O_{2REF} (Q_{stwO_2}), Dry@O_{2REF} (Q_{stdO_2})		
Area of stack, A_s	m^2	0.07
$Q_a = (60)(A_s)(V_s)$	m^3/min	38.4
Conversion factor (K/mm.Hg), C_f	-	0.3592
$Q_{stw} = ((Q_a)(P_s)(C_f)) / ((T_s) + 273)$	m^3/min	33.8
$Q_{std} = ((Q_a)(P_s)(C_f)(1 - (R_{wv}/100))) / ((T_s) + 273)$	m^3/min	33.6
$Q_{stwO_2} = ((Q_a)(P_s)(C_f)) / ((T_s) + 273) / (O_{2REFw})$	m^3/min	N/A
$Q_{stdO_2} = ((Q_a)(P_s)(C_f)(1 - (R_{wv}/100))) / ((T_s) + 273) / (O_{2REFd})$	m^3/min	N/A
Percent isokinetic, %I		
Nozzle diameter, D_n	mm	8.02
Nozzle area, A_n	mm^2	50.56
Total sampling time, q	min	60
$\%I = (4.6398E^6)(T_s+273)(V_{mstd}) / (P_s)(V_s)(A_n)(q)(1 - (R_{wv}/100))$	%	99.6

TOTAL PARTICULATE MATTER: SAMPLING DETAILS

Sample Runs

Parameter	Units	Run 1
Sampling Times	-	15:50 - 16:50
Sampling Dates	-	25/09/2025
Sampling Device	-	ISO
Volume Sampled (REF)	m^3	1.5485
Filter I.D. Number	-	47-123098
Start Filter Mass	g	0.15180
End Filter Mass	g	0.15220
Total Mass on Filter	g	0.00040
Probe Rinse I.D. Number	-	PR-47-123098
Start Probe Rinse Mass	g	2.79989
End Probe Rinse Mass	g	2.80056
Total Mass in Probe Rinse	g	0.00067
Total Mass Collected	mg	1.07
Calculated Concentration	mg/m^3	0.69
Balance Uncertainty / LOD	mg/m^3	0.15

Where: ISO stands for Manual Isokinetic Sampling Train

Blank Runs

Parameter	Units	Blank 1
Blank Dates	-	25/09/2025
Average Volume Sampled (REF)	m^3	1.5485
Filter I.D. Number	-	47-123099
Start Filter Mass	g	0.15172
End Filter Mass	g	0.15173
Total Mass on Filter	g	0.00001
Probe Rinse I.D. Number	-	PR-47-123099
Start Probe Rinse Mass	g	2.97318
End Probe Rinse Mass	g	2.97318
Total Mass in Probe Rinse	g	0.00000
Total Mass Collected	mg	0.01
Calculated Concentration	mg/m^3	0.00
Balance Uncertainty / LOD	mg/m^3	0.15

TOTAL PARTICULATE MATTER: QUALITY ASSURANCE

Sample Runs

Leak Test Results	Units	Run 1
Mean Sampling Rate	l/min	27.6
Pre-Sampling Leak Rate	l/min	0.20
Post-Sampling Leak Rate	l/min	
Allowable Leak Rate	l/min	0.40
Leak Test Acceptable	-	Yes

Water Droplets	Units	Run 1
Are Water Droplets Present	-	No

MU (Concurrent Water Vapour)	Units	Run 1
Measurement Uncertainty (MU)	%	5.7
Allowable MU	%	20.0
MU Acceptable	%	Yes

Silica Gel (Concurrent Water Vapour)	Units	Run 1
Less than 50% Faded	%	Yes

Isokinetic Criterion Compliance	Units	Run 1
Isokinetic Variation	%	99.6
Allowable Isokinetic Range	%	95 - 115
Isokineticity Acceptable	-	Yes

Weighing Uncertainty Criteria	Units	Run 1
Overall Weighing Uncertainty	± mg	0.33
Overall Weighing Uncertainty	± mg/m³	0.21
ELV [Daily ELV for IED]	mg/m³	N/A
Allowable Weighing Uncertainty	mg/m³	N/A
Weighing Uncertainty Acceptable	-	N/A

Filter Temperatures	Units	Run 1
Pre-Conditioning Temperature	°C	180
Post-Conditioning Temperature	°C	160
Maximum Filter Temperature	°C	41

Test Conditions	Units	Run 1
Ambient Temperature Recorded?	-	Yes

TOTAL PARTICULATE MATTER: QUALITY ASSURANCE

(PAGE 2 OF 2)

Blank Runs

Leak Test Results	Units	Blank 1
Expected Sampling Rate	l/min	20.0
Pre-Sampling Leak Rate	l/min	0.18
Post-Sampling Leak Rate	l/min	
Allowable Leak Rate	l/min	0.40
Leak Test Acceptable	-	Yes

Validity of Blank vs ELV	Units	Blank 1
Allowable Blank	mg/m³	N/A
Blank Acceptable	-	N/A

Acetone / Water Rinse Blank	Units	Blank
Acetone / Water Rinse Value	mg/l	2.7
Allowable Blank	mg/l	10
Blank Acceptable	-	Yes

Method Deviations

Nature of Deviation (x = deviation applies to the associated run, wx = deviation also applies to the concurrent water vapour run)	Run Number 1	
There are no deviations associated with the sampling employed.	wx	

TOTAL PARTICULATE MATTER: MEASUREMENT UNCERTAINTY CALCULATIONS

	Value		Standard uncertainty		
Measured Quantities	**Symbol**	**Run 1**	**Symbol**	**Units**	**Run 1**
Sampled Volume (Actual)	V_m	1.5753	uV_m	m³	0.0315
Sampled Gas Temperature	T_m	300.2	uT_m	K	2.00
Sampled Gas Pressure	ρ_m	102.7	$u\rho_m$	kPa	0.50
Sampled Gas Humidity	H_m	0.00	uH_m	% v/v	1.00
Leak	L	0.73	uL	%	-
Mass of Particulate	m	1.07	um	mg	0.23
Uncollected Mass	UCM	0.01	uUCM	mg	-

	Uncertainty as a Percentage		
Measured Quantities	**Units**	**Run 1**	**Requirement of Standard**
Sampled Volume (Actual)	%	2.00	≤2%
Sampled Gas Temperature	%	0.67	≤1%
Sampled Gas Pressure	%	0.49	≤1%
Sampled Gas Humidity	%	1.00	≤1%
Leak	%	0.73	≤2%
Mass of Particulate	%	-	-
Uncollected Mass	%	-	-

	Uncertainty in Measurement Units			Sensitivity Coefficient
Measured Quantities	**Symbol**	**Units**	**Run 1**	**Run 1**
Sampled Volume (STP)	V_m	m³	1.5358	0.45
Leak	L	mg/m³	0.003	1.00
Mass of Particulate	L_r	mg	1.073	0.65
Uncollected Mass	UCM	mg	0.00	0.65

	Uncertainty in Result	
Measured Quantities	**Units**	**Run 1**
Sampled Volume (STP)	mg/m³	0.017
Leak	mg/m³	0.0029
Mass of Particulate	mg/m³	0.1485
Uncollected Mass	mg/m³	0.0025

	Oxygen Correction Part of MU Budget	
Measured Quantities	**Units**	**Run 1**
O_2 Correction Factor	-	N/A
Stack Gas O_2 Content	% v/v	N/A
MU for O_2 Correction	-	N/A
Overall MU For O_2 Measurement	%	N/A

Parameter	**Units**	**Run 1**
Combined uncertainty	mg/m³	0.15
Expanded uncertainty (95% confidence), without Oxygen Correction	mg/m³	0.29
Expanded uncertainty (95% confidence), with Oxygen Correction	mg/m³	N/A
Expanded uncertainty (95% confidence), estimated with Method Deviations	mg/m³	0.29
Reported Uncertainty	mg/m³	0.29
Expanded uncertainty (95% confidence), without Oxygen Correction	%	42.3
Expanded uncertainty (95% confidence), with Oxygen Correction	%	N/A
Expanded uncertainty (95% confidence), estimated with Method Deviations	%	42.3
Reported Uncertainty	%	42.3
Reported Uncertainty as % of ELV	%	N/A

VERSION HISTORY

Version Number	Record of changes made within this version of the document
V1	The original document issued to the client