



Report for the Periodic Monitoring of Emissions to Air

Permit Number: BR96851X
Dow Corning Ltd
Barry Plant
05-July-2016

Contract Reference:	Dow_Corn-02704
Client:	Dow Corning
Address:	Cardiff Road, Barry South Glamorgan, CF63 2YL
Site Contact:	Andrew Martin
Monitoring Organisation:	NWG Environmental Solutions Unit 40 Court Road Industrial Estate Cwmbran, Torfaen. NP44 3AS Telephone: (01633) 862 950 Fax: (01633) 865 087 www.nwg-solutions.co.uk

This report relates to tested items only

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Report written by
Designation

Craig Harley
Air Quality Test Engineer

Date: 26/07/2016

Report Approved by
Designation
MCERTS Registration Number
MCERTS Certification Level

Mark Elliott
Air Quality Manager
MM03 176
Level 2

Date: 26/07/2016

T.E.s Held 1, 2, 3 & 4

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1.1

Monitoring Objectives

The scope of work shown in the table below was required to demonstrate emission concentrations.

Location	Determinand	Number of Sampling Runs	Duration of Sampling Run
ERU	Hydrogen Chloride	One plus Blank	1 Hour
	Chlorine	One plus Blank	1 Hour
	Carbon Monoxide	One (Continuous monitoring)	1 Hour
	Oxides of Nitrogen	One (Continuous monitoring)	1 Hour
	Oxygen	One (Continuous monitoring)	1 Hour

1.2 Monitoring Results

Job Type Monitoring emissions to atmosphere
Company Dow Corning
Site Barry
Location ERU Stack
Process Status During Monitoring Operating as Normal
Reference Conditions 273k, 101.3 kPa, Without correction for moisture or oxygen

Determinand	Run	Units	Emission Limit Value	Date of Sampling	Start and End Times	Periodic Monitoring Result	Uncertainty (±)	Vol. Flow (Nm ³ /min)	Moisture (%H ₂ O)	Monitoring Method Reference	Accreditation for use of Method
Hydrogen Chloride	1	mg/Nm ³	10	05-Jul-16	09:50-10:50	2.3	0.32	153	5.0	BS EN 1911	MCERTS
	Blank				09:45	0.65	0.20	-	-		
Chlorine	1	mg/Nm ³	10	05-Jul-16	11:20-12:20	0.8	0.09	152	5.9	US EPA Method 26	MCERTS
	Blank				11:10	0.08	0.009	-	-		
Carbon Monoxide	1	mg/Nm ³	N/A	05-Jul-16	10:20-11:20	5.9	11.6	-	-	BS EN 15058	MCERTS
Oxides of Nitrogen as NO ₂	1	mg/Nm ³	N/A	05-Jul-16	10:20-11:20	7.6	9.6	-	-	BS EN 14792	MCERTS
Oxygen	1	%	N/A	05-Jul-16	10:20-11:20	13.4	-	-	-	BS EN 14789	MCERTS

Note 1 Where the periodic monitoring result is shown as a "<" value, the uncertainty is calculated at the limit of detection.

Uncertainties expressed at 95% confidence level

1.3

Operating Information

Emission Point Reference	Date	Process Type	Process Duration	Abatement	Load	Comparison of Operator CEMS and Periodic Monitoring Results			
						Substance	CEMS Results	Periodic Monitoring Results	Units
ERU	5-Jul-16	Energy Recovery Unit	Continuous	Scrubber	Dependant on other plant processes.	No CEMs installed			

1.4 Monitoring Deviations

Emission Point Reference	Substance	Substance Deviations	Monitoring Deviations	Other Relevant Issues
ERU	HCl	None	None	Due to an obstruction on the sampling platform, only one sample port is available for traverse.
	Cl ₂	None	None	
	Oxides of Nitrogen	None	None	
	Oxygen	None	None	
	Carbon Monoxide	None	None	

Appendix 1: General Information

Monitoring Organisation Staff Details

Monitoring Organisation Method Details

Monitoring Organisation Equipment Checklist Reference

Manual Monitoring Method Results Calculations

2.1.1 Monitoring organisation staff details

Name	Position	MCERTS Level	TE1	TE2	TE3	TE4	MCERTS registration No.
Sampling Team							
Craig Harley	Air Quality Test Engineer	II	✓	✓	✓	✓	MM05 670
Dale Padfield	Air Quality Technician	II	✓	✓	✓	✓	MM13 1224
Report Writing							
Craig Harley	Air Quality Test Engineer	II	✓	✓	✓	✓	MM05 670
Report Authorisation							
Mark Elliott	Air Quality Manager	II	✓	✓	✓	✓	MM02 006

2.1.2 Monitoring organisation method details

Determinand	In House Method ID	Reference Standard	Analytical Laboratory
HCl	A48	BS EN 1911	NWSS
Cl ₂	A53	US EPA Method 26	NWSS
Carbon Monoxide	A44	BS EN 15058	N/A
Oxides of Nitrogen	A44	BS EN 14792	N/A
Oxygen	A44	BS EN 14789	N/A

2.1.3 Monitoring organisation equipment check list references

Equipment Checklist Ref: DOW_CORN-02704, July 16
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Appendix 2: Stack - ERU

Diagrams

Flow Criteria Measurements

Extractive Results Sheets

Instrumental Gas Analyser Calibration Tables

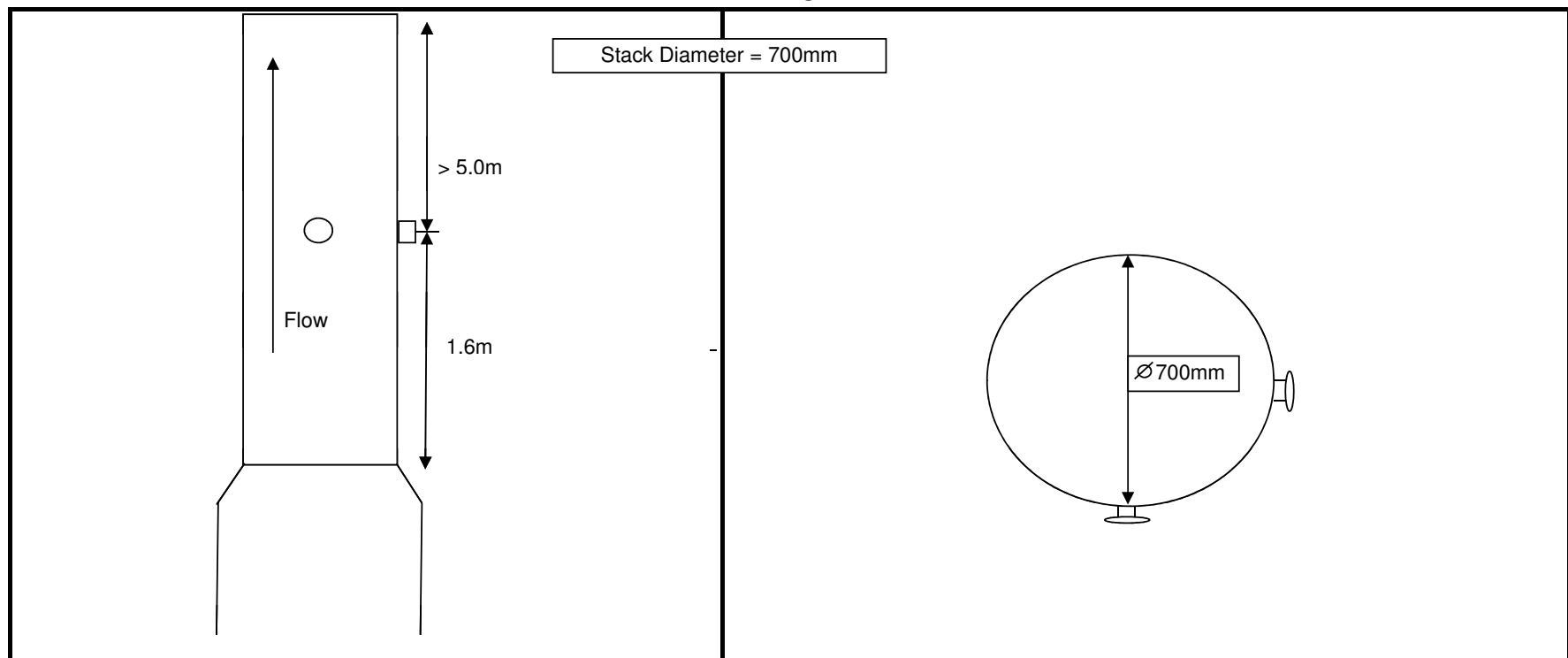
Instrumental Gas Analyser Results Tables

Uncertainty of Measurement.

Analytical Results - 2 Pages numbered separately

Permit Number	Operator Name	Installation Name	Installation Address
BR96851X	Dow Corning Ltd	Barry	Cardiff Road, Barry, Vale of Glamorgan, CF63 2YL

ERU



NWG ES

Velocity and Temperature Data

DATE: 05/07/2016

JOB REF.: 2704

Client:	Dow Corning Ltd			Operators:	DPd/CH		
Location:	Barry			Test For:	HCl, Cl ₂ , CO, NOx & O ₂		
Stack:	ERU			In-house method:	A53 A48 A44		
Pitot Type:	S	Pitot Cp:	0.84	Probe ID:	3371	Meter ID:	1046
Bar. Pressure:	102	Static:	0.6	Duct Shape : Circle (C) or Square (S)			C
Ambient Temp.:	16			Stack Diameter (mm):	700	by	
Stack O2 (%):	NA			Port Length (mm):		260	
Stack CO2 (%):	NA			Area (m2):		0.38	
Stack Moisture (%):	NA						

Traverse Point Number	Distance (mm)	Sample Port 1			Sample Port 2		
		Temp. °C	ΔP cm H2O	Sq.root ΔP	Temp. °C	ΔP cm H2O	Sq.root ΔP
1	102	37	0.40	0.63	Only one port available for velocity traverse.		
2	598	37	0.30	0.55			
3							
4							
5							
6							
7							
8							
9							
10							
Total	TA=	74	0.7	1.2			
Average		37	0.35	0.59			

Flow-stability criteria for periodic sampling of particulates

Criteria	Requirement	Actual
Angle of gas flow	<±15° from stack longitudinal axis	<±15°
Flow direction	No local negative flow	Positive flow
Minimum velocity	5 Pa for pitot tubes	29.4 Pa
Gas velocity variations	Ratio of highest to lowest less than 3:1 (9:1 Pitot)	1.3 :1
Temperature variation	≤ ±5% of mean temperature in Kelvin	0.0 %

NORMAL

CLIENT: Dow Corning

SAMPLE DATE:

05-Jul-16

LOCATION: Barry

PRE BLANK DATE:

05-Jul-16

STACK: ERU

TIME OF SAMPLING:

09:50-10:50

TIME OF PRE BLANK:

09:45

SAMPLING DATA		Cen HCl 1
Run Time (min)		60
Total mass H ₂ O collected (g)		7.2
Pitot tube constant, C _p		0.84
Dry gas meter (DGM) volume (litres)		180.23
Temperature DGM (°C)		21
Temperature stack (°C)		37
Mean pitot tube pressure drop (traverse), delta P(cm H ₂ O)		0.4
Mean pitot tube pressure drop(sample run) , delta P(cm H ₂ O)		0.5
Barometric Pressure (kPa)		101.9
X-sectional area of stack (m ²)		0.4
Efficiency of the 1st Impinger (%)		62
Field Blank as a percentage of ELV (%)		6.5
Reference Conditions		
Temperature (K)		273
Pressure (kPa)		101.3
As a wet gas		
Emission Limit Value (mg/Nm ³)		10
Flow Data		
Velocity, actual (m/s)		7.5
Velocity, ntp (m/s)		6.6
Vol.Flow, actual (m ³ /min)		172
Vol.Flow, ntp wet gas		153
Volume sampled, ntp, dry gas (Nm ³)		0.17
Volume sampled, ntp, wet gas (Nm ³)		0.18
Analytical Data (max µg collected)		Sample Run Pre Blank
Chloride		390 112
Concentration Data (mg/Nm ³ unless otherwise stated)		wet gas
H ₂ O (% vol)		5.0
Hydrogen Chloride Pre Blank		0.65
Hydrogen Chloride		2.3
Mass Emissions Data (Kg/Hr unless otherwise stated)		
Hydrogen Chloride		0.021

CLIENT: Dow Corning

LOCATION: Barry

STACK: ERU

Hydrogen Chloride Uncertainty Calculations		Cen HCl 1	Pre Blank	
Sampling Uncertainty (@ 95% confidence level)	%	10	10	
Sample Volume @ Reference Conditions	m3	0.177	0.177	
Volume Impinger 1	ml	110	95	
Volume Impinger 2	ml	106	91	
Concentration @ Reference Conditions	mg/Nm3	2.3	0.6	
NWSS have calculated total sampling uncertainty at a 95 % confidence level for different sampling conditions.				
The results were between 6 and 9 %.				
NWSS have decided to quote a 'worst case' sampling uncertainty of 10% to cover all sampling procedures.				
	Unit	Source	Value	Value
Analytical Uncertainty	%	From AQC data	9	9
Impinger 1 1/2 LOD	mg/l	From AQC data	0.25	0.25
Impinger 2 1/2 LOD	mg/l	From AQC data	0.25	0.25
mass Chloride collected in Impinger 1	mg	Lab result	0.2	0.1
mass Chloride collected in Impinger 2	mg	Lab result	0.1	0.0
Maximum Chloride Collected	mg	Calculation	0.39	0.11
Impinger 1 Analytical Uncertainty as Chloride	mg	Calculation	0.03	0.02
Impinger 2 Analytical Uncertainty as Chloride	mg	Calculation	0.03	0.02
Total Analytical Uncertainty as Chloride	mg	Calculation	0.04	0.03
Sampling Uncertainty as Chloride	mg	Calculation	0.04	0.01
Total Uncertainty as Hydrogen Chloride	mg	Calculation	0.056	0.036
Total Uncertainty as Hydrogen Chloride	mg/Nm3	Calculation	0.32	0.20
Total Uncertainty as Hydrogen Chloride	%	Calculation	14	31

NORMAL

CLIENT: Dow Corning

SAMPLE DATE:

06-Jun-16

BLANK DATE:

06-Jun-16

LOCATION: Barry

STACK: ERU

TIME OF SAMPLING:

11:20-12:20

TIME OF PRE BLANK:

11:10

SAMPLING DATA		Chlorine
Run Time (min)		60
Total mass H ₂ O collected (g)		8.4
Pitot tube constant, C _p		0.84
Dry gas meter (DGM) volume (litres)		177.58
Temperature DGM (°C)		20
Temperature stack (°C)		37
Mean pitot tube pressure drop (traverse), delta P(cm H ₂ O)		0.4
Mean pitot tube pressure drop(sample run) , delta P(cm H ₂ O)		0.5
Barometric Pressure (kPa)		101.9
X-sectional area of stack (m ²)		0.4
Efficiency of the 1st Impinger (%)		NA
Field Blank as a percentage of ELV (%)		< 0.38
Reference Conditions		
Temperature (K)		273
Pressure (kPa)		101.3
As a wet gas		
Emission Limit Value (mg/Nm ³)		20
Flow Data		
Velocity, actual (m/s)		7.4
Velocity, ntp (m/s)		6.6
Vol.Flow, actual (m ³ /min)		172
Vol.Flow, ntp wet gas		152
Volume sampled, ntp, dry gas (Nm ³)		0.17
Volume sampled, ntp, wet gas (Nm ³)		0.18
Analytical Data (max µg collected)	Sample Run	Blank
Chloride in NaOH	140	13
Concentration Data		
(mg/Nm ³ unless otherwise stated)		wet gas
H ₂ O (% vol)		5.9
Chlorine		0.8
Chlorine Blank		0.08
Mass Emissions Data		
(Kg/Hr unless otherwise stated)		
Chlorine		0.007

CLIENT:

Dow Corning

LOCATION:

Barry

Chlorine Uncertainty Calculations		Chlorine	Chlorine	
Run		1	Blank	
Sampling Uncertainty (@ 95% confidence level)	%	10	10	
Sample Volume @ Reference Conditions	m3	0.177	0.177	
Volume Impinger 1	ml	128	94	
Concentration @ Reference Conditions	mg/Nm3	0.8	0.08	
NWSS have calculated total sampling uncertainty at a 95 % confidence level for different sampling conditions.				
The results were between 6 and 9 %.				
NWSS have decided to quote a 'worst case' sampling uncertainty of 10% to cover all sampling procedures.				
	Unit	Source	Value	Value
Analytical Uncertainty	%	From AQC data	7	7
Impinger 1 1/2 LOD	mg/l	From AQC data	0.0038	0.0038
Impinger 2 1/2 LOD	mg/l	From AQC data	0.0038	0.0038
mass Chloride collected in Impinger 1	mg	Lab result	0.1	0.006
mass Chloride collected in Impinger 2	mg	Lab result	0.0	0.00774
Maximum Chloride Collected	mg	Calculation	0.14	0.01
Impinger 1 Analytical Uncertainty as Chloride	mg	Calculation	0.01	0.0004
Impinger 2 Analytical Uncertainty as Chloride	mg	Calculation	0.00	0.001
Total Analytical Uncertainty as Chloride	mg	Calculation	0.01	0.00
Sampling Uncertainty	mg	Calculation	0.01	0.00
Total Uncertainty	mg	Calculation	0.016	0.002
Total Uncertainty	mg/Nm3	Calculation	0.09	0.009
Total Uncertainty	%	Calculation	12	11

Combustion Gas Emission Data from			ERU
Time	Drift Corrected @ Reference Conditions		
	Oxygen	Carbon Monoxide	Oxides of Nitrogen as NO2
05-Jul-16	(%)	(mg/Nm ³)	(mg/Nm ³)
10:42	13.7	6.1	5.2
10:43	13.7	6.4	5.4
10:44	13.7	6.1	5.4
10:45	13.8	6.1	5.4
10:46	13.8	6.4	5.2
10:47	13.9	6.3	5.0
10:48	14.0	6.3	4.8
10:49	14.2	6.1	4.2
10:50	14.3	6.0	4.1
10:51	14.2	6.1	3.9
10:52	14.2	6.3	4.1
10:53	14.3	6.0	4.1
10:54	13.3	5.7	5.9
10:55	13.3	5.8	6.1
10:56	13.3	5.7	6.1
10:57	13.3	5.7	5.9
10:58	13.3	5.8	6.1
10:59	13.3	5.7	5.9
11:00	13.3	5.8	6.1
11:01	13.3	5.7	6.1
11:02	13.2	5.6	6.3
11:03	13.7	5.9	5.2
11:04	13.5	6.1	5.4
11:05	13.4	5.2	5.6
11:06	13.4	6.2	5.6
11:07	13.3	6.0	5.6
11:08	13.2	5.7	5.8
11:09	13.3	5.9	5.8
11:10	13.3	5.7	5.8
11:11	13.3	5.9	6.0
11:12	13.2	5.7	6.0
11:13	13.2	5.6	6.2
11:14	13.2	5.5	5.9
11:15	13.2	5.9	6.1
11:16	13.3	5.8	5.9
11:17	13.3	6.1	6.1
11:18	13.3	6.0	5.9
11:19	13.3	5.9	5.7
11:20	13.4	5.8	5.5
11:21	13.4	5.9	11.4
11:22	13.5	5.2	11.2
11:23	13.5	6.3	11.1
11:24	13.4	5.7	10.7
11:25	13.2	5.7	10.5
11:26	13.4	5.3	10.9
11:27	13.4	5.7	10.9
11:28	13.5	5.3	11.3
11:29	13.4	5.7	11.3

Combustion Gas Emission Data from			ERU
Time 05-Jul-16	Drift Corrected @ Reference Conditions		
	Oxygen (%)	Carbon Monoxide (mg/Nm ³)	Oxides of Nitrogen as NO2 (mg/Nm ³)
11:30	13.3	5.8	11.3
11:31	13.5	5.7	11.1
11:32	13.4	5.8	11.5
11:33	13.2	5.8	11.5
11:34	13.1	6.2	11.3
11:35	13.0	6.2	11.9
11:36	12.9	6.1	11.9
11:37	12.4	5.7	11.7
11:38	12.4	5.6	11.4
11:39	12.7	5.7	11.2
11:40	12.8	5.7	11.2
11:41	12.8	5.9	10.6
11:42	12.8	5.7	10.6
Average	13.4	5.9	7.6

CO Uncertainty Calculations

ERU

Range 0 - ? ppm	CO
200	250 mg/m ³

studied concentration CO (VLE)	5.9	mg/m ³
measuring time	60	minutes

Conditions of operation	
Measurement are performed in an environment where	
fluctuations of ambient temperature (in °C)	298 to 318 K
fluctuations of sample pressure are within (in kPa)	100 +/- 5
fluctuations of voltage (in V)	200-220
atmospheric pressure variations (in kPa)	99-100
frequency of adjustment (in hours)	10
O2 concentration measured	NA
NH3 range : unknown	Default values :
CO2 range	0-20 mg/m3
H2O range	8-15 %
O2 reference concentration	10-20%
	NA

Performance characteristics	Value	*	specification
Response time	L 60	seconds	1 minute
Repeatability at zero	L 1	% of the full scale	0,2% of the full scale
Repeatability at span level	L 1	% of the full scale	2% of the full scale
Deviation from linearity	L 0.5	% of value	+/-5% of elv
Zero drift ***	L 0.00	% of fs/24h	+/-5% of fs/24h
Span drift ***	L 0.00	% of fs/24h	+/-5% of fs/24h
volume or pressure flow dependence	L 0.02	% of fs/kPa	1% of fs/30kPa
atmospheric pressure dependence	L 0.8	% of value/kPa	3% of value/4kPa
ambient temperature dependence	L 3	%fs/10K	3%fs/10K
dependence on voltage	L 1	%fs/10V	2%fs/10V
losses in the line (leak)	F 2	% of value	2% of value
Uncertainty of calibration gas	F 2	% of value	

L=laboratory F=Field

Measurement performance related to dynamic conditions	
Requirement for response time	120 sec
Measured response time	2 minutes
Conclusion	requirement met

Measurement performance related to stationary conditions			
Performance characteristic	Uncertainty	Value of uncertainty quantity	
Standard deviation of repeatability at zero	U _{r0}	0.0015*410	2.50
Standard deviation of repeatability at span level	U _{rs}	0.008*410	2.50
Lack of fit	U _{fit}	0.007*410/3	0.72
Zero drift	U _{odr}	0.0001*410/3	0.00
Span drift	U _{sdr}	0.01*410/3	0.00
volume or pressure flow dependence	U _{spres}	(0.0002*410)*5/3	0.14
atmospheric pressure dependence	U _{apres}	(0.008*200/1)*0.5/3	0.01
ambient temperature dependence	U _{temp}	(0.003*410/10)*10/3	4.33
dependence on voltage	U _{volt}	0.0012/10*410*10/3	1.44
losses in the line (leak)	U _{leak}	0.02*200/3	0.07
Uncertainty of calibration gas	U _{calib}	0.02*200/3	0.07

Measurement uncertainty at	5.9	mg/m ³
U _{tot}	5.8	mg/m ³
U _{tot} /C _{lim}	99	%
U _{tot,rel}	199	%

Note: Uncertainties for which the results are below the LOD have been calculated at the results shown above.

NOx Uncertainty Calculations

ERU

Range 0 - ? ppm	NOx
100	205 mg/m ³

studied concentration NOx (VLE)	7.6 mg/m ³
measuring time	60 minutes

Conditions of operation	
Measurement are performed in an environment where	
fluctuations of ambient temperature (in °C)	298 to 318 K
fluctuations of sample pressure are within (in kPa)	100 +/- 5
fluctuations of voltage (in V)	200-220
atmospheric pressure variations (in kPa)	99-100
frequency of adjustment (in hours)	10
O2 concentration measured	NA
NH3 range : unknown	Default values : 0-20 mg/m3
CO2 range	8-15 %
H2O range	10-20%
O2 reference concentration	NA

Performance characteristics	Value	*	specification
Response time	L 30	seconds	1 minute
Repeatability at zero	L 1	% of the full scale	0,2% of the full scale
Repeatability at span level	L 1	% of the full scale	2% of the full scale
Deviation from linearity	L 0.5	% of value	+/-5% of elv
Zero drift ***	L 0.00	% of fs/24h	+/-5% of fs/24h
Span drift ***	L 0.00	% of fs/24h	+/-5% of fs/24h
volume or pressure flow dependence	L 0.02	% of fs/kPa	1% of fs/30kPa
atmospheric pressure dependence	L 0.8	% of value/kPa	3% of value/4kPa
ambient temperature dependence	L 3	%fs/10K	3%fs/10K
dependence on voltage	L 1	%fs/10V	2%fs/10V
losses in the line (leak)	F 2	% of value	2% of value
Uncertainty of calibration gas	F 2	% of value	

L=laboratory F=Field

Measurement performance related to dynamic conditions	
Requirement for response time	120 sec
Measured response time	2 minutes
Conclusion	requirement met

Measurement performance related to stationary conditions			
Performance characteristic	Uncertainty	Value of uncertainty quantity	
Standard deviation of repeatability at zero	U _{r0}	0.0015*410	2.05
Standard deviation of repeatability at span level	U _{rs}	0.008*410	2.05
Lack of fit	U _{fit}	0.007*410/3 ^{1/2}	0.59
Zero drift	U _{odr}	0.0001*410/3 ^{1/2}	0.00
Span drift	U _{sdr}	0.01*410/3	0.00
volume or pressure flow dependence	U _{spres}	(0.0002*410) ^{1/3}	0.12
atmospheric pressure dependence	U _{apres}	(0.008*200/1) ^{1/3}	0.02
ambient temperature dependence	U _{temp}	(0.003*410/10) ^{1/3}	3.56
dependence on voltage	U _{volt}	0.0012/10*410*10/3 ^{1/2}	1.19
losses in the line (leak)	U _{leak}	0.02*200/3	0.09
Uncertainty of calibration gas	U _{calib}	0.02*200/3	0.09

Measurement uncertainty at	7.6	mg/m ³
U _{tot}	4.8	mg/m ³
U _{tot/Clim}	63	%
U _{tot,rel}	126	%

Note: Uncertainties for which the results are below the LOD have been calculated at the results shown above.

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Client:	Dow Corning	Plant:	Barry	Location:	ERU
Operators:	D Padfield, C Harley	Test For:	Nox & CO	In-house Method No.:	A44
Laptop ID:	606	Start:	Temp (°C)	16	101.9
Data Logger ID:	1308	End:	16	Pressure (kPa)	101.9
Chiller ID	5451	Chiller Temp. & Time	12:00	2c	Flow Rate (l/min)
					0.4

Action	O2	CO	SO2	NO	NOx	CO2	VOC	
Analyser & Cylinder Info.	Analysers ID	2119						
	Gas Divider ID	1140						
	Span Gas Lot Number	VC107165	VC107165		VC112909	VC112909		
	Span Gas Uncertainty (±%)	1	1		1.5	1.5		
ELVs & Ranges	Half hourly or Daily ELV (mg/m³)	N/A	100		100	100		
	Half hourly or Daily ELV (ppm)	N/A	80		75	49	N/A	
	Ideal Range [150%] to [300%] (ppm)	N/A	N/A	120	240	112	224	73
	Range Used	25	200		100	100		
Span & Divider Information	Span Range [50%] to [90%] (ppm)	N/A	100	180		50	90	50
	Span Certified Value of Cylinder (ppm)	15.45	246.00		75.00	75.00		
	Proposed Span Value (ppm)	15.45	122.80		75.00	75.00		
	Actual Gas Divider %	100.00	49.93		100.00	100.00		
	Actual Span value to be used (ppm) (A)	15.5	122.8		75.0	75.0		
	T ₉₀ Value (ppm) of (A)	13.9	110.5		67.5	67.5		
Analyser Calibration	T ₉₀ Time Analyser (seconds)	5	5		5	5		
	3 x T ₉₀ Time Between Readings	15	15		15	15		
	Zero Response	0.00	0.00		0.00	0.00		
	Span Response (B)	15.45	122.20		75.00	75.00		
	Re-Zero Response	0.00	0.00		0.00	0.00		
	Analysers Repeatability	0.23	0.20		0.19	N/A		
Initial Line Checks	<2 x Repeatability	PASS	PASS		PASS	N/A		
	T ₉₀ Time System (seconds)	10	10		10	10		
	3 x T ₉₀ Time Between Readings	30	30		30	30		
	System Check: Zero (C)	0.03	0.20		0.10	0.100		
	C/B*100 =	0.19	0.16		0.1333	0.13333		
	C/B*100 = <2%	PASS	PASS		PASS	PASS		
	System Check: Span (D)	15.45	122.20		74.70	74.70		
Final Line Checks	(D-B)/B*100 =	0.00	0.00		-0.40	-0.40		
	(D-B)/B*100 = <2% (= <5% SO ₂)	PASS	PASS		PASS	PASS		
	System Check: Zero (E)	0.09	-1.20		0.30	0.30		
	(E-C)/D*100 =	0.39	1.00		0.2677	0.2677		
	Drift: (E-C)/D*100 = <5%	PASS	PASS		PASS	PASS		
	System Check: Span (F)	15.53	119.50		71.90	71.90		
	(F-D)/B*100 =	0.52	-2.21		-3.73	-3.73		
	Drift: (F-D)/B*100 = <5%	PASS	PASS		PASS	PASS		

A	C Harley	NA	D Padfield
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Client: DOW CORNING LTD

Contract: DOW_CORN-02704

Air Monitoring

Mr Andrew Martin
Cardiff Road
Barry
South Glamorgan

Northumbrian Water Scientific Services
Northumberland Dock Road
Wallsend
Tyne & Wear
NE28 0QD
Tel. 0191 2968366 Fax. 0191 2968535

						Method	H090	H163
								*
Sample			Date	Time	Date	Date	chloride	volume of sample
ID Number	Description		Taken	Taken	Received	Started	mg/l	ml
1252143	E.R.U. - RUN 1 - IMP 1	DI H2O	05/07/16	09:55	08/07/16	11/07/16	2.2	110.00
1252145	E.R.U. - RUN 1 - IMP 2	DI H2O	05/07/16	09:55	08/07/16	11/07/16	1.4	106.00
1252148	E.R.U. - BLANK - IMP 1	DI H2O	05/07/16	09:45	08/07/16	11/07/16	0.70	95.000
1252149	E.R.U. - BLANK - IMP 2	DI H2O	05/07/16	09:45	08/07/16	11/07/16	<0.50	91.000

Authorised by:



Ian Barnabas - Scientific Support Laboratory Manager

Tests marked "*" in this report are
NOT included in the UKAS
accreditation schedule for this
laboratory.

This report was compiled by Customer Department

In the event of a query please contact them on the above number

Opinions and interpretations expressed herein are out side the scope of UKAS accreditation

Results relate only to the items tested

Date: 01/07/16
July 2016
Issue 1

Dow Corning Ltd
Barry Site
Permit Number: BR96851X

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Client: DOW CORNING LTD

Contract: DOW_CORN-02704

Air Monitoring

Mr Andrew Martin
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Barry
South Glamorgan

Northumbrian Water Scientific Services
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Tyne & Wear
NE28 0QD
Tel. 0191 2968366 Fax. 0191 2968535

						Method	H163	H164
							*	
Sample						Date	volume of sample	chloride in NaOH
ID Number	Description		Date Taken	Time Taken	Date Received	Date Started	ml	mg/l
1252151	E.R.U. - RUN 1 - IMP 1	0.1N NAOH	05/07/16	11:20	08/07/16	11/07/16	128.00	0.80
1252152	E.R.U. - RUN 1 - IMP 2	0.1N NAOH	05/07/16	11:20	08/07/16	11/07/16	120.00	0.31
1252154	E.R.U. - BLANK - IMP 1	0.1N NAOH	05/07/16	11:10	08/07/16	11/07/16	94.000	0.061
1252155	E.R.U. - BLANK - IMP 2	0.1N NAOH	05/07/16	11:10	08/07/16	11/07/16	88.000	0.088

Authorised by:



Ian Barnabas - Scientific Support Laboratory Manager

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05/07/2016 00:00:00

08/07/2016 23:59:59

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Dow Corning Ltd
Barry Site
Permit Number: BR96851X
July 2016
Issue 1

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