
Report for the Monitoring of the Odour Control Unit at Bryn Pica**Installation Name & Address:**

Biogen Bryn Pica
Merthyr Road
Llwycoed
Aberdare
CF44 0BX

Site Permit Number:

EPR/SP3537VQ

Stack Reference:

A5, Carbon Filter Inlet

Dates of Monitoring Campaign:

30th August 2023

Report Written by:

David Littlewood
Technical Compliance Manager
MCerts Level 2
MM06 772
TE1 TE2 TE3 TE4

Report Date:

13th September 2023

Version:

Version 1

Signature of Report Writer:

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Overall Aim of the Monitoring Campaign:

The aim of the monitoring was to assess the effectiveness of the carbon filter odour control plant at Bryn Pica.

Special Requirements: There were no special requirements.

Target Parameters: Ammonia, Hydrogen Sulphide

MONITORING RESULTS

Parameter	Concentration		
	Units	Result	Limit
Ammonia ¹	mg/m ³	0.76	-
Hydrogen Sulphide ¹	mg/m ³	1.87	-

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

MONITORING DATE(S) & TIMES

Parameter		Units	Concentration	Sampling Date(s)	Sampling Times	Duration (mins)
Ammonia	T1	mg/m ³	0.76	30/08/2023	10:20-10:50	30
Hydrogen Sulphide	T1	mg/m ³	1.87	30/08/2023	09:46-10:16	30

All results are expressed at the respective reference conditions.

PROCESS DETAILS

Standard Operating Conditions

Parameter	Value
Process Status	Normal Operations
Capacity (of 100%) and Tonnes/Hour	n/a
Continuous or Batch Process	Continuous
Feedstock (if applicable)	Extraction from Waste Reception Hall
Abatement System	Pre Carbon Filter
Abatement System Running Status	Normal
Fuel	n/a
Plume Appearance	None Visible

MONITORING & ANALYTICAL METHODS

Parameter	Monitoring	Analysis		
	Standard Used	Analytical Technique	Analysis Status	Analysis Lab
Ammonia	ISO 21877	Ion Chromatography	MCerts	MAR
Hydrogen Sulphide	CEN/TS 13649	Ion Chromatography	Non Accredited	MAR

ANALYSIS LABORATORY

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

Marchwood Scientific Services Ltd (MAR)	ISO 17025 Accreditation Number: 1668
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SUMMARY OF SAMPLING DEVIATIONS

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

SAMPLE LOCATION**Duct Characteristics**

Parameter	Units	Value
Type	-	Circular
Depth	m	0.8
Width	m	-
Area	m ²	0.503
Port Depth	cm	10
Orientation of Duct	-	Vertical
Number of Ports	-	1
Sample Port Size	-	4" BSP

Location of Sampling Platform

Parameter	Value
Permanent/Temporary Platform	Permanent
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)	Yes
Platform has vertical base boards (approx. 0.25m high)	Yes
Platform has chains / self closing gates at top of ladders	Yes
There are no obstructions present which hamper insertion of sampling equipment	Yes
Safe Access Available	Yes
Easy Access Available	Yes

Sampling Location / Platform Improvement Recommendations

The sampling location is suitable for monitoring, and therefore there are no improvement recommendations.

EN 15259 Homogeneity Test Requirements

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

PLANT PHOTOGRAPHS & SAMPLING POINT



APPENDIX 1**STACK EMISSION MONITORING PERSONNEL**

Position	Name	MCerts Accreditation	Mcerts Number	Technical Endorsements
Technical Compliance Manager	David Littlewood	MCerts Level II	MM06 772	TE1 TE2 TE3 TE4

EQUIPMENT LIST

Item Description	Model No.	Serial No.	Calibration Due
Sampling Pump	220-4000	235210	20/03/2024
Digital Manometer Reader	Kimo MP210	1D230500693	09/05/2024
Digital Mano Pressure Unit	MPR500	1D221203833	09/05/2024
Site Balance	NVV2002	8343354354	20/05/2024
Digital Barometer	14-650-118, 15557603	230309530	03/05/2025

APPENDIX 2

RAW DATA & CALCULATIONS

HYDROGEN SULPHIDE RAW DATA & CALCULATIONS	
Stack Name:	Bryn Pica - Carbon Filter Inlet
Date:	30/08/2023
Stack Diameter (m):	0.8
Stack Temp (°C):	18
Ambient Temp (°C):	20.8
Ambient Pressure mb):	1011
Tube Reference No.:	653852740
Tube Reference No. (Blank):	653852739
Start Time:	09:46
End Time:	10:16
Duration (mins):	30
Flow Rate (ml/min)	500
Dilution used?:	No
Average Pump Temp (°C):	20
Sample Volume (ltr):	15
Sample Volume (ltr) @STP:	14.444

Parameter	Lab Result (ug)	LOD (ug)	Concentration mg/m ³	Concentration (Blank Reviewed) mg/m ³	Reported LOD mg/m ³
Hydrogen Sulphide	27	10	1.87	0.69	1.18
*Reference Conditions are: 273K, 101.3kPa, without correction for water vapour content					
Parameter	Lab Result				

AMMONIA RAW DATA AND CALCULATIONS													
Site Name:				Bryn Pica									
Unit:				Carbon Filter Inlet									
Date:				30/08/2023									
Operator:				DL									
Ambient Temp (°C)				20.8									
Ambient Pressure (mb)				1011									
Permitted NH3 ELV				n/a									
Impinger Weights (g)				Start Time	End Time	Duration (mins)	Flow Rate (ml/min)	Stack Temp (°C)	Final Imp. Temp (°C)	Sample Volume (ltrs)	Sample Volume @STP (ltrs)	Ave. Pump Temp (°C)	Ave. Pump Pressure (inH ₂ O)
	Start	End	Gain/Loss	10:20	10:50	30	500	18	18.4	15	14.388	20.8	11.1
Imp. A	86.11	86.11	0.00										
Imp. B	88.14	88.12	-0.02	Imp. A+B Vol. (ml)		Imp C Vol. (ml)	Leak Check Time		Leak Rate (ml/min)	Leak < 2% of Nominal Flow			
Imp. C	86.41	86.58	0.17	42		25	10:19		0.0	YES			
SiGel	25.44	25.50	0.06										
Total:			0.21										

APPENDIX 3

LABORATORY RESULTS



CERTIFICATE OF ANALYSIS

MSSL reference: 23-59124

Report date: 11-09-2023

Customer: Biogen UK Ltd
Milton Parc
Milton Ernest
Bedfordshire
MK44 1YU

Customer contact(s): david.littlewood@biogen.co.uk

Customer reference: -	Analysis started: 04-09-2023
Customer PO: -	Analysis complete: 07-09-2023
Customer sampling date: 30-08-2023	Conforming: Yes
Date received: 04-09-2023	

This report shall not be reproduced except when in full without approval of the laboratory.
Results only relate to the items tested. Results apply to the samples as received.
Conformance is contingent upon accurate information being provided by the customer and customer compliance with relevant sample handling and storage conditions prior to receipt at the laboratory.
All opinions and interpretations expressed within this report are outside Marchwood's scope of accreditation.

Accreditation Key:

Y : ISO 17025 UKAS M : MCERTS
N : Non Accredited (S) : Subcontracted

Notes:

Reported by: Theo Robertson
Position: Analytical Chemist

Approved by: Peter Allen
Position: General Manager
For/on behalf of Marchwood Scientific Services Ltd



t: 0161 703 9170 w: www.cawood.co.uk/marchwood
Marchwood, Unit 5, 60 Smithfold Lane, Worsley, Gr Manchester M28 0GP



Analysis of Ammonia from 0.05M H₂SO₄ impinger(s) by IC (WI 002) to BS EN ISO 21877:2019

MSSL sample ref:	23-59124-001	23-59124-002	23-59124-003	23-59124-004
Customer sample ref:	B1	T1A	T1B	T2A
Impinger sample volume (mL):	63	36	22	42

Determinand	Units	LOD	Acc.				
Ammonia	mg/L	0.10	M	<0.10	0.21	<0.10	0.20

MSSL sample ref:	23-59124-005
Customer sample ref:	T2B
Impinger sample volume (mL):	25

Determinand	Units	LOD	Acc.	
Ammonia	mg/L	0.10	M	<0.10

Analysis of hydrogen sulphide from charcoal tube(s) (226-09) by IC.

MSSL sample ref:	23-59124-006	23-59124-007	23-59124-008
Customer sample ref:	653852740	653852741	653852739

Determinand	Units	LOD	Acc.			
Hydrogen sulphide ⁽¹⁾	µg	10	N	27	19	17

⁽¹⁾ Results have been blank-corrected.

WI 001 - Heavy metals

Determinand	Matrix	Expanded Uncertainties (%)		
		Imp (HNO ₃ /H ₂ O ₂)	Filter	Probe wash
Beryllium		7.4	9.0	9.0
Titanium		5.7	6.1	6.2
Vanadium		4.9	5.7	5.4
Chromium		5.1	11.3	5.5
Manganese		5.3	8.8	5.7
Cobalt		5.0	7.5	5.2
Nickel		6.3	13.1	5.7
Copper		6.1	5.5	5.4
Zinc		9.1	9.2	7.4
Arsenic		5.2	8.4	6.4
Selenium		5.5	7.9	5.9
Cadmium		5.0	5.0	3.8
Tin		5.5	7.2	5.8
Antimony		5.1	5.5	6.3
Thallium		6.5	7.2	6.9
Lead		5.3	6.5	5.7

WI 002 - Ammonia

Determinand	Matrix	Expanded Uncertainties (%)
		Imp (0.05M H ₂ SO ₄)
Ammonia		7.2

WI 003 - Anions

Determinand	Matrix	Expanded Uncertainties (%)		
		Imp (D/I Water)	Imp (0.1M NaOH)	Imp (0.05M H ₂ SO ₄)
Hydrogen Fluoride		6.3	-	-
Hydrogen Chloride		5.4	-	-
Hydrogen Bromide		-	-	6.0
Chlorine		-	9.2	-
Bromine		-	8.5	-

WI 004 - Mercury

Determinand	Matrix	Expanded Uncertainties (%)			
		Imp (KMnO ₄)	Imp (K ₂ Cr ₂ O ₇)	Filter	Probe wash
Mercury		8.5	7.0	13.8	9.3

WI 005 - Particulates

Determinand	Matrix	Expanded Uncertainties (mg)				
		47mm GFA	47mm QMA	110mm GFA	110mm QMA	Probe wash
Particulates		0.427	0.434	0.475	1.98	0.589
Particulates		37mm GFA	37mm QMA	-	-	-
Particulates		0.207	0.203	-	-	-

Conditioning temperatures for method WI005 are 180°C for preweight and 160°C for reweight

WI 007 - SO₂

Determinand	Matrix	Expanded Uncertainties (%)
		Imp (0.3% H ₂ O ₂)
SO ₂		3.7

WI 3048 - VOCs (SO)

Determinand	Matrix	Expanded Uncertainties (%)
		Charcoal Tube
Hexane		21.8
Methyl ethyl ketone		24.8
Ethyl acetate		18.4
Benzene		17.8
Methyl iso butyl ketone		15.7
Toluene		11.1
m/p-Xylene		10.8
o-Xylene		15.1
Chloroform		17.7
Carbon tetrachloride		22.8
Tetrachloroethylene		18.6