

Permit Number: EPR/BU5453IY
 Operator: AGC Chemicals Europe Limited
 Facility: AGC Chemicals Europe, Hillhouse

Form Number: Air 8 / 2017

Reporting of periodically monitored emissions to air for the period from ...January 2023... to ...June 2023...

Emission Point	Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Result Date and Time [3]	Uncertainty [4]	Comments
A1	Carbon monoxide (CO)	No limit set	A period of stable operation	6.35 kg/hr	In-house method	29/05/2023 to 04/06/2023		Highest weekly average for period 1 January to 30 June 2023
		25 tonnes	Annually	20.537 tonnes	Calculation	01/01/2023 to 30/06/2023		Total tonnage emitted for period 1 January to 30 June 2023
A1	Tetrafluoroethylene (TFE) Class B Volatile Organic Compounds (VOC) [5]	2 kg/hour	A period of stable operation	1.34 kg/hr	In-house method	17/04/2023 to 23/04/2023		Highest weekly average for period 1 January to 30 June 2023
		7 tonnes	Annually	2.0 tonnes	Calculation	01/01/2023 to 30/06/2023		Total tonnage emitted for period 1 January to 30 June 2023
A1	Trifluoromethane (R23) Class A VOC [5]	500 g/hour	A period of stable operation	0.48 kg/hr	In-house method	08/05/2023 to 15/05/2023		Highest weekly average for period 1 January to 30 June 2023
A1	Difluoromethane (R32) Class A VOC [5]	100 g/hour	A period of stable operation	0.08 kg/hr	In-house method	23/01/2023 to 29/01/2023		Highest weekly average for period 1 January to 30 June 2023
A1	Trifluoroethylene (3FE) Class B VOC [5]	2 kg/hour	A period of stable operation	0.11 kg/hr	In-house method	17/04/2023 to 23/04/2023		Highest weekly average for period 1 January to 30 June 2023
		5 tonnes	Annually	0.044 tonnes	Calculation	01/01/2023 to 30/06/2023		Total tonnage emitted for period 1 January to 30 June 2023
A1	Pentafluoroethane (R125) Class A VOC [5]	100 g/hour	A period of stable operation	0.011 kg/hr	In-house method	27/03/2023 to 02/04/2023		Highest weekly average for period 1 January to 30 June 2023
A1	Chlorodifluoromethane (R22) Class A VOC [5]	100 g/hour	A period of stable operation	0.10 kg/hr	In-house method	27/02/2023 to 05/03/2023		Highest weekly average for period 1 January to 30 June 2023
A2	Tetrafluoroethylene (TFE) Class B VOC [5]	2 kg/hour	A period of stable operation	0.064 kg/hr	In-house method	09/01/2023 to 16/01/2023		Highest weekly average for period 1 January to 30 June 2023
		5 tonnes	Annually	0.074 tonnes	Calculation	01/01/2023 to 30/06/2023		Total tonnage emitted for period 1 January to 30 June 2023
A2	Hexafluoropropylene (HFP) Class B VOC [5]	2 kg/hour	A period of stable operation	0.012 kg/hr	In-house method	09/01/2023 to 15/01/2023		Highest weekly average for period 1 January to 30 June 2023
		5 tonnes	Annually	0.012 tonnes	Calculation	01/01/2023 to 30/06/2023		Total tonnage emitted for period 1 January to 30 June 2023
A2	Chlorodifluoromethane (R22) Class A VOC [5]	800 g/hour	A period of stable operation	0.80 kg/hr	In-house method	16/01/2023 to 25/01/2023		Highest weekly average for period 1 January to 30 June 2023

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Emission Point	Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Result Date and Time [3]	Uncertainty [4]	Comments
A4	Hydrogen Fluoride (HF)	No limit set	Sample to be collected when lubricant oven is in operation	66.9 mg/m ³ 98.15 g/hr	In-house method	09/05/2023	+/- 8.1 mg/m ³ +/- 13.45 g/hr	Measurement of uncertainty associated with the result as stated by the external test house on the report. HF monitoring has been completed in January and May due to missed monitoring Q4 2022. Average value has been recorded for monitoring undertaken in May as the January monitoring was not completed over the full 10 hr oven cycle.
		250 kg	Annually	91 kg	Calculation	01/01/2023 to 30/06/2023		Based on final product from the L168 oven tonnage for Q1 and Q2 2023 and HF monitoring undertaken May 2023.
A5	SAA-1000 (EEA-NH4)	No limit set	A period of stable operation	< 0.92 mg/m ³ 0.0017 mg/m ³	In-house method	09/03/2023 11/05/2023	+/- 0.2 mg/m ³ +/- 0.003 mg/m ³	SAA-1000 monitoring was undertaken in March and May. Monitoring planned for September and December 2023 to be completed.
A6	Tetrafluoroethylene (TFE) Class B VOC [5]	No limit set	A period of stable operation	0.048 tonnes	Calculation	01/01/2023 to 30/06/2023		From reactor purge record

- [1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
- [2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases, the principal technique is stated, for example gas chromatography.
- [3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
- [4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
- [5] Class A VOCs to be expressed as individual VOCs and Class B VOCs to be expressed as carbon.

Signed*: [REDACTED]

Date: 01/08/2023

(*authorised to sign as representative of AGC Chemicals Europe Limited)

Permit Number: EPR/BU5453IY
 Operator: AGC Chemicals Europe Limited
 Facility: AGC Chemicals Europe, Hillhouse

Form Number: Water 1 / 2017

Reporting of periodically monitored emissions to water (other than to sewer) for the period from ...January 2023... to ...June 2023...

Emission Point	Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]	Comments
Monitoring requirements relevant to the effluent release from the thermal treatment plant scrubber (from Table S3.3 of the permit)								
W1	Cadmium (Cd) and Thallium (Tl) and their compounds expressed as cadmium/thallium	The limit is applicable to the effluent from the thermal treatment plant scrubber outlet, defined as W4 in Table S3.4 of the permit.[5]	Flow proportional sample	Ca: 0.01 mg/l Tl: 0.01 mg/l	BS EN ISO 15586	Ca: March Th: January		Highest monthly result for period 1 January to 30 June 2023
W1	Arsenic (As), Lead (Pb), Chromium (Cr), Copper (Cu), Nickel (Ni) and Zinc (Zn) and their compounds		Flow proportional sample	As: 0.012 mg/l Pb: <0.01 mg/l Cr: 0.05 mg/l Cu: 0.02 mg/l Ni: 0.039 mg/l Zn: 0.03 mg/l	BS EN ISO 15586	As: February Pb: January and April Cr: March Cu: February and May Ni: June Zn: April		Highest monthly result for period 1 January to 30 June 2023
W1	Dioxins and furans		Flow proportional sample	Total 2,3,7,8-Furans 0.00715 ng/l Total 2,3,7,8-Dioxins 0.03411 ng/l	BS ISO 18073	June		Highest monthly result for period 1 January to 30 June 2023
Emission limits and monitoring requirements relevant to the effluent releases from the installation (from Table S3.3 of the permit)								
W1	Suspended Solids	150 mg/l ^[6]	Flow weighted composite sample	252.8 mg/l	In-house method	02/06/2023		Highest monthly result for period 1 January to 30 June 2023. Incident reported to environment agency and CAR report received BU5453IY/0468332
W1	Chemical Oxygen Demand	No limit set	Spot sample	1880 mg/l	In-house method based on BS ISO 15705:2002, BS 6068-2.80:2022	w/c 15/05/2023		Highest weekly spot sample result for period 1 January to 30 June 2023
W1	Fluoride (expressed as Fluorides)	No limit set	Flow weighted composite sample	14.20 mg/l	Ion chromatography	June		Highest monthly result for period 1 January to 30 June 2023
W1	Octylphenoethoxylate	No limit set	Flow weighted composite sample	<0.01 µg/ml	In-house method	All results <0.01 µg/ml [†]		Highest monthly result for period 1 January to 30 June 2023
W1	SAA-1000 (EEA-NH4)	No limit set	Flow weighted composite sample	12.0 µg/ml	In-house method	March 2023		Highest monthly result for period 1 January to 30 June 2023

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Emission Point	Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]	Comments
W1	Mercury (Hg)	0.05 mg/l [5]	Flow proportional sample	0.01 mg/l	BS EN ISO 17852	January 2023		Highest monthly result for period 1 January to 30 June 2023
		1 kg	Annually	0 Kg	Calculation	n/a		Total tonnage emitted for period 1 January to 30 June 2023 Product is produced using a non-mercury process with a product specification of Hg <0.001 mg/kg.
W1	pH minimum	5	Daily average	6.25	pH meter	04/01/2023		Lowest pH result from the daily effluent composite sample for period 1 January to 30 June 2023
W1	pH maximum	8.5	Daily average	7.62	pH meter	25/01/2023, 19-20/02/2023		Highest pH result from the daily effluent composite sample for period 1 January to 30 June 2023
W1	Temperature maximum	40°C	n/a	35.72°C	Temperature sensor	21/05/2023		Highest Temperature Reading for period 1 January to 30 June 2023
W1	Flow maximum	No limit set	Daily average	1656m ³	MCERTs flow meter	09/01/2023		Highest Daily Total for period 1 January to 30 June 2023
Emission limits for effluent release from the Thermal Treatment Plant scrubber (W4) – discharging to the on-site effluent treatment plant (W1) (from Table S3.4 of the permit)								
W4	Total Suspended Solids	30 mg/l [7]	Flow weighted composite sample [9]	Unable to calculate. See IC4 report.	As set out in Table S3.3 of the permit [9] [10]	As measured and reported for W1 above.		Note: Thermal treatment plant scrubber was offline for the majority of Q1 – Q2 see A14 thermal treatment plant quarterly submission.
		45 mg/l [8]						
W4	Mercury and its compounds, expressed as mercury	0.03 mg/l	Flow proportional sample [9]	As measured and reported for W1 above. It is not possible to measure at W4	As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		
W4	Cadmium and thallium and their compounds expressed as cadmium/thallium	0.05 mg/l	Flow proportional sample [9]		As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		
W4	As and its compounds expressed as As	0.15 mg/l	Flow proportional sample [9]		As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		
W4	Pb and its compounds expressed as Pb	0.20 mg/l	Flow proportional sample [9]		As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		
W4	Cr and its compounds expressed as Cr	0.50 mg/l	Flow proportional sample [9]		As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		
W4	Cu and its compounds expressed as Cu	0.50 mg/l	Flow proportional sample [9]		As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		

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Emission Point	Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]	Comments
W4	Ni and its compounds expressed as Ni	0.50 mg/l	Flow proportional sample [9]	As measured and reported for W1 above. It is not possible to measure at W4	As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		Note: Thermal treatment plant scrubber was offline for the majority of Q1 – Q2 see A14 thermal treatment plant quarterly submission.
W4	Zn and its compounds expressed as Zn	1.50 mg/l	Flow proportional sample [9]		As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		
W4	Dioxins and furans	0.30 ng/l	Flow proportional sample [9]		As set out in Table S3.3 of the permit [9]	As measured and reported for W1 above.		

- [1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
- [2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases, the principal technique is stated, for example gas chromatography.
- [3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
- [4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
- [5] The limit is applicable to the effluent from the thermal treatment plant scrubber outlet, defined as W4 in Table S3.4 of the permit.
- [6] A limit of 250 mg/l is effective during maintenance of the on-site effluent treatment processes. This limit can be applied for a maximum of 28 days during a year.
- [7] Compliance is achieved when 95% of the measurements do not exceed the limit.
- [8] Compliance is achieved when 100% of the measurements do not exceed the limit.
- [9] Monitoring carried out at W1 shall be used to determine compliance with the limits at W4.
- [10] Reporting will be against the W1 limit of 150mg/l

Signed*: [REDACTED]

Date: 31/07/2023

(*authorised to sign as representative of AGC Chemicals Europe Limited)