

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)<br>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)<br>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)<br>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)<br>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)<br>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)<br>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)<br>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)<br>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)<br>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 <sup>3</sup><br>98.15 g/hr                 | In-house method | 09/05/2023               | +/- 8.1 mg/m <sup>3</sup><br>+/- 13.45 g/hr              | Measurement of uncertainty associated with the result as stated by the external test house on the report.<br>HF monitoring has been completed in January and May due to missed monitoring Q4 2022.<br>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 <sup>3</sup><br>0.0017 mg/m <sup>3</sup> | In-house method | 09/03/2023<br>11/05/2023 | +/- 0.2 mg/m <sup>3</sup><br>+/- 0.003 mg/m <sup>3</sup> | SAA-1000 monitoring was undertaken in March and May. Monitoring planned for September and December 2023 to be completed.                                                                                                                                                                                                                           |
| A6             | Tetrafluoroethylene (TFE)<br>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\* XXXXXXXXXX

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<br>Tl: 0.01 mg/l                                                                        | BS EN ISO 15586                                               | Ca: March<br>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<br>Pb: <0.01 mg/l<br>Cr: 0.05 mg/l<br>Cu: 0.02 mg/l<br>Ni: 0.039 mg/l<br>Zn: 0.03 mg/l | BS EN ISO 15586                                               | As: February<br>Pb: January and April<br>Cr: March<br>Cu: February and May<br>Ni: June<br>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<br>0.00715 ng/l<br>Total 2,3,7,8-Dioxins<br>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                                                                                                                                  | Octylphenolethoxylate                                                                              | 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<br>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 <sup>3</sup>                                                         | MCERTs flow meter                               | 09/01/2023                             |                 | Highest Daily Total for period 1 January to 30 June 2023                                                                                                       |
| <b>Emission limits for effluent release from the Thermal Treatment Plant scrubber (W4) – discharging to the on-site effluent treatment plant (W1)</b> (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)