

Permit Number: BV4223IE Operator: Huntsman Corporation UK Limited

Facility: Llanelli Plant Form Number: Air1

Reporting of emissions to air for the period from 1<sup>st</sup> July 2019 to 31<sup>st</sup> December 2019

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result <sup>(1)</sup>	Test Method <sup>(2)</sup>	Sample Date and Times <sup>(3)</sup>	Uncertainty <sup>(4)</sup>
A1	Hydrogen chloride	20 mg/m <sup>3</sup>	Minimum 1-hour period	0.52	BS EN 1911	20/12/2019 09:19 – 10:09	0.053
A1	Hydrogen fluoride	2 mg/m <sup>3</sup>	Minimum 1-hour period	0.01	ISO 15713	20/12/2019 10:38 – 11:28	0.015
A1	Sulphur dioxide	100 mg/m <sup>3</sup>	Minimum 1-hour period	1.71	BS EN 14791	20/12/2019 11:51 – 12:41	0.186
A1	Cadmium & thallium and their compounds (total)	0.05 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period	0.0004	BS EN 14385	19/12/2019 08:52 – 10:54	0.0007
A1	Mercury and its compounds	0.05 mg/m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period	0.0003	BS EN 13211	19/12/2019 08:52 – 10:54	0.0004
A1	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/ m <sup>3</sup>	over minimum 30 minute, maximum 8 hour period	0.040	BS EN 14385	19/12/2019 08:52 – 10:54	0.005
A1	Dioxins/furans (I-TEQ)	0.1ng/m3	Over minimum 6 hour, maximum 8 hour period	0.0773	BS EN 1948 (1,2,3)	18/12/2019 11:06 – 17:20	0.0234
A1	Dioxin/furans (WHO-TEQ Humans/Mammals) ng/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	0.0592	BS EN 1948/TS(part 4)	18/12/2019 11:06 – 17:20	0.0179
A1	Dioxin/furans (WHO-TEQ Fish) ng/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	0.0764	BS EN 1948/TS(part 4)	18/12/2019 11:06 – 17:20	0.0231

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result <sup>(1)</sup>	Test Method <sup>(2)</sup>	Sample Date and Times <sup>(3)</sup>	Uncertainty <sup>(4)</sup>
A1	Dioxin/furans (WHO-TEQ Birds)	No limit set	Over minimum 6 hour, maximum 8 hour period	0.2095	BS EN 1948/TS(part 4)	18/12/2019 11:06 – 17:20	0.0633
A1	Dioxin-like PCBs (WHO-TEQ Humans/Mammals) ng/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	0.0017	BS EN 1948/TS(part 4)	18/12/2019 11:06 – 17:20	0.0005
A1	Dioxin-like PCBs (WHO-TEQ Fish) ng/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	0.0001	BS EN 1948/TS(part 4)	18/12/2019 11:06 – 17:20	0.0000
A1	Dioxin-like PCBs (WHO-TEQ Birds) ng/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	0.0037	BS EN 1948/TS(part 4)	18/12/2019 11:06 – 17:20	0.0011
A1	Poly-cyclic aromatic hydrocarbons (PAHs) Total ug/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	1.170	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Anthanthrene ug/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	<0.003	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Benzo[a]anthracene ug/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	0.11	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Benzo[b]fluoranthene ug/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	0.24	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Benzo[k]fluoranthene ug/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	0.05	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Benzo[b]naph [2,1-d]thiophene ug/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	<0.004	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result <sup>(1)</sup>	Test Method <sup>(2)</sup>	Sample Date and Times <sup>(3)</sup>	Uncertainty <sup>(4)</sup>
A1	Benzo[c]phenanthrene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	0.01	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Benzo[ghi]perylene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	<0.003	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Benzo[a]pyrene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	0	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Cholanthrene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	<0.004	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Chrysene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	0.22	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Cyclopenta[c,d]pyrene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	<0.004	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Dibenzo[ah]anthracene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	<0.003	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Dibenzo[ai]pyrene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	<0.005	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Fluoranthene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	0.38	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A1	Indo[1,2,3-cd]pyrene ug/m3	No limit set	Over minimum 6 hour, maximum 8 hour period	0.04	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result <sup>(1)</sup>	Test Method <sup>(2)</sup>	Sample Date and Times <sup>(3)</sup>	Uncertainty <sup>(4)</sup>
A1	Naphthalene ug/m <sup>3</sup>	No limit set	Over minimum 6 hour, maximum 8 hour period	0.1	BS ISO 11338-1 and BS-ISO 11338-2	19/12/2019 11:25 – 17:29	0.572
A2	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	400 mg/m <sup>3</sup>	Minimum 1 hour period	N/A	BS EN 14792	N/A	N/A
A2	Carbon monoxide	200 mg/m <sup>3</sup>	Minimum 1 hour period	N/A	BS EN 15058	N/A	N/A

- 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.

Signed .....

Date 03/02/2020 .....

Authorised to sign as representative of Huntsman Corporation UK Limited  
representative of Huntsman Corporation UK Limited