

Operator: Dow Silicones UK Ltd
Installation: Barry Silicon-Based Manufacturing Installation

Permit Reference Number: BR96851X

2019 Annual Reporting for Dow Silicones UK Ltd

Parameters, for which reports are required, in accordance with conditions of the permit, are listed within this report.

Performance Parameter	Reporting Form	Page
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Energy Usage	BR96851X / E1	12
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Water usage	BR96851X / WU1	15
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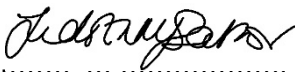
Quarterly Reporting of Emissions to Water (other than to Sewer) for the period from **October 1 2019 to December 31 2019**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
W1 via M1	Flow	11 000 m ³ /day	8210	Agreed ⁽¹⁰⁾	03-Nov	MCERT Approved	+/- 0.5%
W1 via M1	Flow	625 m ³ /hour	611.26	Agreed ⁽¹⁰⁾	27-Nov	MCERT Approved	+/- 0.5%
W1 via M1	pH	≥ 6, ≤ 9	6.11 8.31	To be agreed ⁽¹¹⁾	29-Oct 18-Nov	Under Review ⁽¹¹⁾	+/- 4%
W1 via M1	Temperature	40 °C ^[6]	28.51	RTD ⁽¹²⁾	23-Oct	MCERTS Equiv ⁽¹²⁾	+/- 0.55 °C
W1 via M1	Suspended solids	30 mg/l	19.49	SCA Blue Book 105	Q4 2019	Under Review	+/- 6mg/l
W1 via M1	BOD ₅	20 mg/l	3.00	SCA Blue Book 130	03-Dec	UKAS	+/- 21%
W1 via M1	Copper	0.1 mg/l	0.0779	Inductively Coupled Plasma	Q4 2019	In house validated method	+/- 0.0096 mg/l
W1 via M1	Zinc	0.5 mg/l	0.021	Inductively Coupled Plasma	Q4 2019	In house validated method	+/- 0.02 mg/l
W1 via M1	Hydrocarbon oil	No visible sheen	No visible sheen	Visual Check	Q4 2019	N/A	N/A
W2	pH	≥ 6, ≤ 9	No Water discharged from W2 during Q4 2019	pH probe	No Water discharged from W2 during Q4 2019	In house validated method	+/- 4%
W2	Suspended solids	30 mg/l		SCA Blue Book 105		Under Review	+/- 6mg/l
W2	BOD ₅	20 mg/l		SCA Blue Book 130		UKAS	+/- 21%
W2	COD	125 mg/l (13)		Offsite Analysis		UKAS	Unknown
W2	Copper	0.15 mg/l ^[7]		Inductively Coupled Plasma		In house validated method	+/- 0.0096 mg/l
W2	Zinc	0.25 mg/l ^[7]		Inductively Coupled Plasma		In house validated method	+/- 0.02 mg/l
W2	Hydrocarbon oil	No visible sheen		Visual Check		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 Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, e.g. 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 accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.
- [5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
- [6] Not more than 5% of measurements in the reporting period shall exceed the limit value.
- [7] To be reported for each effluent transfer from W809 to W413.

Dow Silicones Notes:

- (8) The result is the 95%ile reading for the reporting period to demonstrate compliance with the emission limit value stated, which is a 95%ile limit.
- (9) Old note now removed (not applicable).
- (10) Instrument and measurement technique has been reviewed under improvement item IP8. The final treated effluent Danfloss flow meter FT5098 has been MCERT approved. It has been agreed that from 1 October 2009 onwards that the dry flow rate discharge limit of 11,000 m³/day will apply and that reported flow data will relate purely to treated effluent with storm water flow (from W952 penstock valve) excluded from the totalised discharge from release point W1.
- (11) Instrument and measurement technique has been reviewed under improvement item IP10. Existing pH meters will be replaced by MCERT certified pH meter upon failure. Current meters deemed satisfactory in the interim.
- (12) Instrument and measurement technique was reviewed under Note 7 Table 2.2.5 and Agency responded. A New MCERT equivalent resistance thermometer was installed by Dow Silicones in Q4 2007.
- (13) No spot sample shall exceed the limit value by more than 50%. Limit is 125 mg/l so allowable spot sample result is 187.5 mg/l, result was below this.

Signed 

Date...30th Jan 2020.....

(authorised to sign as representative of Operator)

Quarterly Reporting of Emissions to Air for the period from **October 1 2019 to December 31 2019**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]		Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A26	Class B VOC's	No limit applies	1.7908	kg/hr	Gas chromatography	02/10/2019 14:40	In House Validated Method	3.6%
A26	Siloxanes	No limit applies ⁽⁶⁾	0.6628	kg/hr	Gas chromatography	02/10/2019 14:40	In House Validated Method	3.6%
A27	Siloxanes	No limit applies ⁽⁶⁾	0.0079	kg/hr	Gas chromatography	02/10/2019 15:00	In House Validated Method	3.6%
A43	Hydrogen chloride	10mg/m ³	2.5869	mg/m3	Ion chromatography	02/10/2019 14:20	In House Validated Method	3.6%
A44	Hydrogen chloride	10mg/m ³	See note 8		Ion chromatography	N/A	In House Validated Method	3.6%
A57	Hydrogen chloride	10mg/m3	0.610520508	mg/m3	Ion chromatography	02/10/2019 11:30	In House Validated Method	3.6%
A60	Class B VOC's	5000 kg/year ⁽⁷⁾	0.0400 186.9727	kg/hr kg	Gas chromatography	02/10/2019 10:30 2019 TOTAL	In House Validated Method	3.6%
A65	Siloxanes	No limit applies ⁽⁶⁾	0.0021	kg/hr	Gas chromatography	02/10/2019 09:40	In House Validated Method	3.6%
A68	Class B VOC's	5000 kg/year ⁽⁷⁾	0.2159 1013.4774	kg/hr kg	Gas chromatography	02/10/2019 09:55 2019 TOTAL	In House Validated Method	3.6%
A68	Siloxanes	No limit applies ⁽⁶⁾	1.6460	kg/hr	Gas chromatography	02/10/2019 09:55	In House Validated Method	3.6%
A78	Class A VOC's	No limit. Temperature (°C)	26.6309	°C	RTD	01/10/2019 17:51	Internally Calibrated	0.02%
A79	Siloxanes	No limit applies ⁽⁶⁾	0.8745	kg/hr	Gas chromatography	02/10/2019 10:45	In House Validated Method	3.6%
A85	Siloxanes	No limit applies ⁽⁶⁾	0.0247	kg/hr	Gas chromatography	02/10/2019 09:30	In House Validated Method	3.6%

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[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 Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, e.g. 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 accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

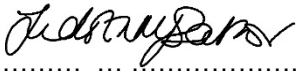
[6] Emission limit to be agreed following completion of IP14. This was deferred for consideration with IP25. No limit applies.

[7] Emission limit agreed following completion of IP4 (5000 kg/year).

Dow Silicones Notes:

(8) A44 is now decommissioned (vent is released via A43).

(9) Releases modelled as part of IP16. Agency agreed that releases do not require abatement and that limit no longer applies. Instead the vent temperature will be recorded on form A2 quarterly to ensure vent condenser performance does not deteriorate. A new temperature transmitter was installed in 2009 to give continuous temperature monitoring with operator alarm for elevated condenser outlet temperature to trigger condenser cleaning operations. Result recorded is the maximum temperature value obtained during the reporting period.

Signed 

Date...30th Jan 2020.....

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Annual Reporting of Emissions to Air for the period from **January 1 2019 to December 31 2019**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Units	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A12, A33, A34, A40 ⁽¹⁰⁾	Chloromethane	60 000kg/year	24660.34	kg/yr	US EPA Method 18	continuous	In House GC	A12 = 4% A33 = 24% A34 = 3% A40 = 3.6%
A12, A33, A34, A40 ⁽¹⁰⁾	Chloromethane	1000kg/day	1182.15 Note 15	kg/day	US EPA Method 18	29/11/2019	In House GC	A12 = 4% A33 = 24% A34 = 3% A40 = 3.6%
A12, A33, A34, A40 ⁽¹⁰⁾	Chloromethane	250kg/hour	240.07	kg/hr	US EPA Method 18	29/11/2019 20:00-21:00	In House GC	A12 = 4% A33 = 24% A34 = 3% A40 = 3.6%
A33	Methanol	60kg/hour	15.50	kg/hr	US EPA Method 18	30/3/2019 21:00-22:00	In House GC	42%
A34	Methanol	60kg/hour	29.37	kg/hr	US EPA Method 18	25/10/2019 01:00-02:00	In House GC	1%
A12	Methane ^[6]	No limit applies	312.92	kg/hr	US EPA Method 18	15/02/2019 16:00-17:00	In House GC	1%
A12	Non-methane hydrocarbons ^[6]	No limit applies	137.94	kg/hr	US EPA Method 18	19/09/2019 15:00-16:00	In House GC	2%
A40	Silanes ^[6]	No limit applies	n/a	-	Gas chromatography	n/a	In House validated Method	3.6%
A40	Silanes ^[7]	No limit applies	n/a	-	Gas chromatography	n/a	In House validated Method	3.6%
A41	Particulates	10 mg/m ³	1.1	mg/m ³	BS EN 13284	31st Jan 2019 10:15	UKAS & MCERTS	+/- 0.33
A41	Carbon monoxide	50mg/m ³	0.633	mg/m ³	ISO 12039	Annual average	In House validated Method	13%
A41	Oxides of nitrogen as NO ₂	100mg/m ³	13.097	mg/m ³	ISO 10849	Annual average	In House validated Method	11%
A41	Dioxins and furans	0.1ng/m ³	0.00585	ng/m ³	BS EN 1948	Annual average – 12 samples	UKAS & MCERTS	+/- 0.003
A48	Oxides of nitrogen as NO ₂	No limit applies	104.7	mg/m ³	ISO 10849	10th July 2019 10:20	In House validated Method	11%

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Units	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A48	Carbon monoxide	No limit applies	0.2	mg/m ³	ISO 12039	10 th July 2019 10:20	In House validated Method	13%
A50	Oxides of nitrogen as NO ₂	200mg/m ³	79	mg/m ³	ISO 10849	29 th Aug 2019 11:35	In House validated Method	11%
A50	Carbon monoxide	200mg/m ³	0.6	mg/m ³	ISO 12039	29 th Aug 2019 11:35	In House validated Method	13%
A85	Hydrogen chloride ^[8]	10mg/m ³	n/a	mg/m ³	BS EN 1911:1998	n/a		
A26	Class B VOC's ^[9]	No limit applies	1.4336	kg/hr	BS EN 13649	Annual average	In House validated Method	3.6%
A60	Class B VOC's ^[9]	5,000 kg/yr ⁽¹¹⁾	187.9	kg	BS EN 13649	Annual total release	In House validated Method	3.6%
A68	Class B VOC's ^[9]	5,000 kg/yr ⁽¹¹⁾	1015.4	kg	BS EN 13649	Annual total release	In House validated Method	3.6%
A26	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	0.7125	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%
A65	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	0.0017	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%
A68	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	1.3175	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%
A79	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	1.4253	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%

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[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

[6] Maximum kg/h obtained during the reporting period.

[7] Total release during the reporting period.

[8] Reporting only required if phosphonitrile production during reporting year.

[9] Average of quarterly reported values in reporting year.

[10] Based on an agreed emission factor

[11] Emission limit agreed following completion of IP4

[12] Emission limit to be agreed following completion of IP14. This has been deferred for consideration with IP25. No limit was agreed.

(13) There is no routine monitoring frequency required for A40 apart from the requirements listed in Table 2.10.1 under 'other requirements' and a method for such testing has not yet been agreed with the Agency. Dow Silicones has agreed with the Agency to use previously agreed IPC emission factors for silane releases from A40 for PI reporting purposes, as described in IPC improvement item 8.21. Under Improvement item IP3 the Environment Agency agreed to remove the requirement for silane monitoring at A41 when the ERU is not available for periods greater than 6 hrs.

(14) This is no longer made in W307.

(15) This was reported as a Schedule 5, no other exceedances during 2019

Signed 

Date...30th Jan 2020.....

(authorised to sign as representative of Operator)

Annual Reporting of Emissions to Air for the period from **January 1 2019 to December 31 2019**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1] Mg/m ³	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A41	Hydrogen chloride	15mg/m ³	0.986	US EPA Method 26	31/01/2019 10:15-11:15	UKAS & MCERTS	±36%
			4.374	US EPA Method 26	21/02/2019 11:45-12:45	UKAS & MCERTS	±36%
			6.350	US EPA Method 26	05/03/2019 11:05-12:05	UKAS & MCERTS	±36%
			0.107	US EPA Method 26	09/04/2019 12:16-13:16	UKAS & MCERTS	±36%
			1.033	US EPA Method 26	17/05/2019 09:57-10:57	UKAS & MCERTS	±36%
			1.459	US EPA Method 26	12/06/2019 11:50-12:50	UKAS & MCERTS	±36%
			0.379	US EPA Method 26	09/07/2019 09:58-10:58	UKAS & MCERTS	±36%
			4.633	US EPA Method 26	28/08/2019 13:04-14:04	UKAS & MCERTS	±36%
			0.353	US EPA Method 26	11/09/2019 09:52-10:52	UKAS & MCERTS	±36%
			1.074	US EPA Method 26	02/10/2019 14:25-15:25	UKAS & MCERTS	±36%
			0.443	US EPA Method 26	14/11/2019 13:35-14:35	UKAS & MCERTS	±36%
			0.294	US EPA Method 26	3/12/2019 11:31 – 12:31	UKAS & MCERTS	±36%
		10mg/m ³	1.790		Annual average		

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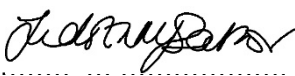
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Dow Silicones Notes:

HCl results are corrected for STP, ref 11% O₂, dry

Signed 

Date...30th Jan 2020.....

(authorised to sign as representative of Operator)

Annual Reporting of Emissions to Air for the period from January 1 2019 to December 31 2019

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1] Mg/m ³	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A41	Chlorine	15mg/m ³	0.146	US EPA Method 26	31/01/2019 11:25-12:25	UKAS & MCERTS	±36%
			0.061	US EPA Method 26	21/02/2019 10:35-11:35	UKAS & MCERTS	±36%
			1.759	US EPA Method 26	05/03/2019 13:00-14:00	UKAS & MCERTS	±36%
			0.028	US EPA Method 26	09/04/2019 10:54-11:54	UKAS & MCERTS	±36%
			0.198	US EPA Method 26	17/05/2019 11:12-12:12	UKAS & MCERTS	±36%
			1.181	US EPA Method 26	12/06/2019 13:21-14:21	UKAS & MCERTS	±36%
			0.300	US EPA Method 26	09/07/2019 11:09-12:09	UKAS & MCERTS	±36%
			0.415	US EPA Method 26	28/08/2019 14:06-15:06	UKAS & MCERTS	±36%
			0.066	US EPA Method 26	11/09/2019 11:14-12:14	UKAS & MCERTS	±36%
			0.760	US EPA Method 26	02/10/2019 15:51-16:51	UKAS & MCERTS	±36%
			0.137	US EPA Method 26	14/11/2019 12:00-13:00	UKAS & MCERTS	±36%
		0.582	US EPA Method 26	3/12/2019 13:30 – 14:30	UKAS & MCERTS	±36%	
	10mg/m ³	0.469		Annual average			

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[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 accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Dow Silicones Notes:

Chlorine results are corrected for STP, ref 11% O₂, dry

Signed Jameson

Date...30th Jan 2020.....

(authorised to sign as representative of Operator)

Annual Reporting of Emissions to Air for the period from **January 1 2019 to December 31 2019**

There weren't any transfers of Spent bed into W348 TCS spend bed tank and therefore no potential for associated chloromethane releases in 2019

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A57	Chloromethane	2kg/h	N/A				

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[4] The accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Dow Silicones Notes:

There weren't any transfers of Spent bed into W348 TCS spend bed tank and therefore no potential for associated chloromethane releases in 2019

Signed 

Date...30th Jan 2020.....

(authorised to sign as representative of Operator)

Reporting of Energy Usage for the year 2019

[illegible]

Trends in Energy Usage			
Year	Primary Energy usage	CO ₂ produced	CO ₂ per unit output
2008	1,101,571	207,755	
2009	1,066,743	183,110	
2010	1,018,415	191,869	
2011	1,040,640	195,636	
2012	1,044,862	197,154	
2013	1,039,643	196,913	
2014	1,080,683	204,686	
2015	1,060,647	200,560	
2016	1,065,704.1	200,195.5	
2017	1,040,379	196,834	
2018	1,123,088	211,053	
2019	1,009,656.98	187,789.38	

* Conversion factor for delivered electricity to primary energy = 2.4

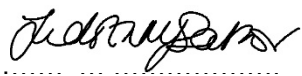
Signed  Date...30th Jan 2020.....
(authorised to sign as representative of Operator)

Reporting of Waste Disposal and Recovery for the year 2019

Waste Description	Route	Disposal Tonnes	Recovery Tonnes
1) Hazardous Wastes			
Asbestos	Landfill	1	
Calcium filtercake	Landfill	3226.98	
CISi - DPR liquid gas (8-6149)	Energy recovery		230.1
CISi - DPR liquid gas (8-6149)	Incineration	557.27	
Cuprous Chloride	Incineration	4.05	
Cuprous Chloride	Water Treatment	120.434	
Haz DPR	Recovery		8547.054
Mixed incineration	Incineration	267.56875	
SiH Siloxane & Isoparaffin 8-6856 (tanker - W922)	Incineration	229.56	
Siloxane Hydrocarbons 8-6818 (tanker)	Energy recovery		196.635
Solvent siloxane	Energy recovery		373.11575
Spent Bed	Recovery		8299.16
Spent Sulphuric acid	Incineration	110.3	
Spent Sulphuric acid	Recovery		6365.315
WEEE	Recycling		11.24
Toluene/Glycol	Energy recovery		1.558
Contaminated PPE (Tonnes)	Energy recovery		62.15
Solvent separator slurry	Incineration	20.68	
Diol vols	Energy recovery		710.25325
Waste gum	Incineration	23.73125	
Packaged - other treatment	Landfill		351.43
Mineral oil with MeCl	Energy recovery		5.453
Total Hazardous waste		4561.57	25153.46
2) Non-Hazardous Wastes			
Alumina RAR Catalyst	Landfill	58.46	
Aluminium cans	Recycling		26.7
Biosludge from SWWT	Water Treatment	2765.48	

[illegible]

Waste Description	Route	Disposal Tonnes	Recovery Tonnes
Calcium Slurry	Water Treatment	146.53	
Cardboard	Recycling		163.76
Filter Cartridge material	Landfill	9	
Food waste for composting	Composted		8.9
General Waste	Energy recovery		210.87
Glass	Recycling		4.98
Gypsum	Landfill	0.82	
Lagging	Energy recovery		67.44
Magnesium Oxide/Calcium Carbonate	Landfill	26.12	
Non Haz White DPR (Q8-6717)	Landfill	3397.21	
Paint Tins	Recycling		8.42
Paper	Recycling		18.82
Plastic	Recycling		65.65
Rubber	Energy recovery		357.92
Scrap metal	Recycling		337.28
Shot Blast	Recycling		146.24
Silicon Metal	Recycling		46.64
Wood	Recycling		232.83
Empty drums (tonnes)	Recycling		140.668
Empty IBC (tonnes)	Recycling		92.928
Spent catalyst containing palladium	Recovery		2.53
Total Non Hazardous waste		6403.62	1932.576
TOTAL WASTE		10965.194	27086.04

Signed 

Date...30th Jan 2020.....

(authorised to sign as representative of Operator)

Trends in Waste Disposal and Recovery	
Year	Parameter
	- Mixed incineration increased again due to increased availability of incinerators during 2019 - More cuprous chloride to water treatment due to increased cleaning - Calcium slurry lower again during 2019 due to improved reliability in wastewater treatment area - Decrease in rubber to energy recovery due to having cleared a backlog during 2018 - Increase in lagging due to some large on site projects to replace lagging - Zero non haz Calcium filter cake during 2019 as now classified as Haz due to reduced water content - Decrease in non haz DPR gels due to increased running of the process reusing waste

Reporting of Water Usage for the year 2019

Water Source	Usage (m ³)	Specific Usage (m ³ /t)
Towns water	533,863	
Bigliss well water	1,613,548	
Cadoxton river water	43,995	
TOTAL WATER USAGE	2,191,407	

Trends in Water Usage					
Year	Parameter				
	Towns water	Bigliss well water	Cadoxton river water	Total water usage	Water per unit output
2009	121,193	821,102	899,394	1,851,689	
2010	237,014	986,518	748,770	1,972,302	
2011	273,504	932,737	925,974	2,132,215	
2012	187,886	826,251	1,058,541	2,072,658	
2013	230,623	933,912	899,926	2,064,461	
2014	230,189	768,111	551,771	1,550,071	
2015	244,473	785,203	564,798	1,594,474	
2016	276,011	993,693	442,702	1,712,406	
2017	245,697	1,248,673	863,303	2,357,673	
2018	418,725	1,267,630	681,722	2,368,077	
2019	533,863	1,613,548	43,995	2,191,407	

Operator's comments :

Towns water data obtained from invoices.

River water and Biglis water is measured.

The Biglis water consumption includes the supply to the CHP

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Annual Reporting of Energy Recovery Unit Availability for the period from **January 1 2019 to December 31 2019**

Process	Parameter	Month	Result ^[1] , %
Energy Recovery Unit W949	Availability	January	72.3%
		February	75.0%
		March	64.7%
		April	62.7%
		May	43.1%
		June	68.3%
		July	64.3%
		August	48.6%
		September	55.1%
		October	70.8%
		November	0%
		December	100.0%
		Reporting year total	64.7%

[1] Based on the availability to process 100% of W714 FBR vent. Calculated using feed valve position and positive flows.

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