NRW Annual
Submissions

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Natural Resources Wales
Chester Road
Buckley
CH7 3AJ
Flintshire

Your Ref: LP 3738GG (BX4666IZ) Date: 12th February 2020

Subject: 2019 Annual Submissions

Whomever it may concern,

Please find attached our annual submissions report for the Optical Shops manufacturing of Infra red Products Permit LP3738GG (BX4666IZ).

If there is any additional information required please do not hesitate to contact me.

Yours Sincerely,

Paul Carline

Quality System Manager

Permit Number: BX4666IZ Operator: Qioptiq LTD, St Asaph

Facility: St Asaph, Infra Red Optics Form Number: A1 – Air

ANNUAL: Reporting of emissions to air for the period from 01/01/19 to 31/12/19

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
A2	Particulate Matter	1 mg/m³	60 Minutes	0.69 mg/m³	BS EN 13284-1	24/10/19 10 :25-11 :25	+/- 0.30
A5	Particulate Matter	1 mg/m³	60 Minutes	0.19 mg/m3	BS EN 13284-1	24/10/19 14:30-15:30	+/- 0.37
A7	Particulate Matter	1 mg/m³	60 Minutes	0.19 mg/m3	BS EN 13284-1	24/10/19 13:15 – 14:15	+/- 0.37
A10	Particulate Matter	1 mg/m³	60 Minutes	0.15 mg/m3	BS EN 13284-1	24/10/19 12:00– 13:00	+/- 0.30
A2,A5,A7,A10 COMBINED	Particulate Matter (g/annum) (See Note 1)	-	NA	1053 g/annum	BS EN 13284-1	-	-
A2	White Spirit, expressed as C (*mg/m³*)	-	30 Minutes	90 mg/m3	BS EN 13649	24/10/19 10 :25-11 :25	+/- 14
A10	White Spirit, expressed as C (*mg/m³*)	-	30 Minutes	90 mg/m3	BS EN 13649	24/10/19 12:00– 13:00	+/- 14
A2	Specified Metals (*mg/m³*)	-	60 Minutes	0.0005 mg/m3	BS EN 14385	24/10/19 10 :25-11 :25	+/- 0.0009
A5	Specified Metals (*mg/m³*)	-	60 Minutes	0.00034 mg/m3	BS EN 14385	24/10/19 14:30-15:30	+/- 0.001
A7	Specified Metals (*mg/m³*)	-	60 Minutes	0.00034 mg/m3	BS EN 14385	24/10/19 13:15 – 14:15	+/- 0.001
A10	Specified Metals (*mg/m³*)	-	60 Minutes	0.00027 mg/m3	BS EN 14385	24/10/19 12:00– 13:00	+/- 0.001

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Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
A2,A5,A7,A10 COMBINED	Thallium and its compounds (g/annum)	-	N/A	1.176g/annual	N/A	N/A	
A2,A5,A7,A10 COMBINED	Gallium and its compounds (g/annum)	-	N/A	1.176g/annual	N/A	N/A	
A2,A5,A7,A10 COMBINED	Selenium and its compounds (g/annum)	-	N/A	1.176g/annual	N/A	N/A	
A2,A5,A7,A10 COMBINED	Arsenic and its compounds (g/annum)	-	N/A	1.176g/annual	N/A	N/A	
Installation A2 as C (A2. A10, A11)	Volatile Organic Compounds Kg/Annum	-	N/A	390 Kg/Annum	N/A	N/A	
A11	VOC	75 mg/m3	30 Minutes	21 mg/m3	BS EN 13649	21/10/19 10:23 – 10:53	+/- 4.2
A2	Extraction Rate (m^3s^{-1})		N/A	4.0	N/A	24/10/19 10 :10	+/- 0.16
A5	Extraction Rate (m^3s^{-1})		N/A	3.4	N/A	24/10/19 14:15	+/- 0.19
A7	Extraction Rate (m^3s^{-1})		N/A	4.0	N/A	24/10/19 13:05	+/- 0.16
A10	Extraction Rate (m^3s^{-1})		N/A	7.9	N/A	24/10/19 11:50	+/- 0.17
A11	Extraction Rate (m^3s^{-1})		N/A	11.8	N/A	21/10/19 10:12	+/- 0.25

Operator's comments:

Final annual total figures are based on standard working days in 2019 - 3 days shutdown over Christmas (261 – 2 = 258) , operating three shifts across the 24 hours calculated against the stack emissions g/hour result.

(g/hour x 6192) = Annual Total in g/annum

Signed .....
(Paul Carline Quality System Manager)

Date 12/2/20

ANNUAL: Reporting of emissions to sewer for the period from 01/01/19 to 31/12/19 Form Number: S1 –Sewer

Emission Point	Substance / Parameter	Limit Value (mg/l)	Result [1]	Test Method [2]	Sample Date and Times [3]
S1	Chemicals Oxygen Demand	3000	< 50	Wessex Laboratories UKAS 1899	23/01/19 14:43
S1	Chemicals Oxygen Demand	3000	< 50	Wessex Laboratories UKAS 1899	06/02/19 14:15
S1	Chemicals Oxygen Demand	3000	65	Wessex Laboratories UKAS 1899	25/03/19 15:25
S1	Chemicals Oxygen Demand	N/A	N/A	N/A	No April data collected by DCWW
S1	Chemicals Oxygen Demand	3000	< 50	Wessex Laboratories UKAS 1899	08/05/19 11:48
S1	Chemicals Oxygen Demand	3000	244	Wessex Laboratories UKAS 1899	21/06/19 14:06
S1	Chemicals Oxygen Demand	3000	< 50	Wessex Laboratories UKAS 1899	31/07/19 13:42
S1	Chemicals Oxygen Demand	3000	<50	Wessex Laboratories UKAS 1899	08/08/19 13:29
S1	Chemicals Oxygen Demand	3000	<50	Wessex Laboratories UKAS 1899	03/09/19 12:15
S1	Chemicals Oxygen Demand	3000	<50	Wessex Laboratories UKAS 1899	15/10/19 13:20
S1	Chemicals Oxygen Demand	3000	144	Wessex Laboratories UKAS 1899	07/11/19 11:36
S1	Chemicals Oxygen Demand	3000	80	Wessex Laboratories UKAS 1899	19/12/19 13:16

Signed .....

(Paul Carline Quality System Manager)

Date: 12/2/20

Facility: St Asaph, Infra Red Optics Form Number: WU 1 – Water Usage

Annual: Reporting of Water Usage for the year 2019

Water Source	Usage (m^3/year	Specific Usage (m^3/unit output)
Mains water	367	<0.02
TOTAL WATER USAGE	367	

Operator's comments :

Usage figure is taken from individual meter readings within the installation area (optical shop)
Consumption of water per unit has been calculated as follows:
Number of lenses produce in 2019 relating to the permit process = 17681

367÷17681 = 0.02
The calculation above is estimated at worst case scenario, the majority of the process waste is contained within our tankers, bunds or hazardous waste processing and the actual figure will be substantially less than calculated.

Signed .....
(Paul Carline Quality System Manager)

Date: 12/2/20

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Facility: St Asaph, Infra Red Optics Form Number: E1 – Energy

Annual: Reporting of Energy Usage for the year 2019

Energy Source	Energy Usage Quantity	Primary Energy (MWh)	CO2 Produced (Tonnes)
Electricity * (SSE)	1593.674 MWh	3824.817	**969.89
Natural Gas (Total gas and Power)	517.181 MWh	517.181	105.45
TOTAL	2110.86	4341.99	1075.35

* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments:
Electricity Total: 11383.39 MWh with 14% installation estimate = 1593.674 MWh.
Gas Total: 2722.01 MWh with 19% of installation estimate = 517.18 MWh
** Assumption has been made for January data based on 2019 11 month average due to missing data.
CO2 tonnage has been calculated using the conversion factor of
0.25358kg per kWh (electricity)
0.20390kg per kWh (gas)
Taken form DEFRA carbon conversion guidance

Signed .....
(Paul Carline Quality System Manager)

Date: 12/2/20

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Facility: St Asaph, Infra Red Optics Form Number: R1 – Waste Disposal

Annual: Reporting of Waste disposal and recovery for the year 2019

Waste Description	Disposal Route	Tonnes	Recovery Tonnes
Hazardous Waste Total	Optical IR	62.21	0
Non-hazardous Waste	Segregation and recycling	22	11
(40% of Site Total)	landfill.		
TOTAL SITE: 56,485KG			

Trends in Waste Disposal and Recovery Year	Parameter	
	Total Hazardous Waste (Tonnes)	TOTAL N/H Waste (Tonnes)
2014	42.55	39.01
2015	38.62	34.82
2016	51.00	30.00
2017	73	31.02
2018	80	44
2019	62.21	22

Operator Comments:
The hazardous waste figures have be calculated using the 2018 report produced by our waste contactor detailing the waste type and tonnages. Extrapolating this data against our known waste streams from the permitted area

The 2018 figures for Non- hazardous waste have been based on the same assumption of previous years (The Optical Shop accounts for an estimated 30% of Qioptiq's waste)

Signed .....
(Paul Carline Quality System Manager)

Date 12/2/20

Facility: **St Asaph, Infra Red Optics** **Form Number: P/1 Performance**

Annual: Reporting of other performance indicators for the period 01/01/19 to 31/12/19

Parameter	Units
Water Usage	367
Energy Consumption	4341.99

Trends in Environmental Performance		
Year	Water Consumption Per Infra Red Optic	Energy Consumption Per Infra Red Optic
2015	0.066 m3/lens	0.752 MWh/IR Lens
2016	0.041 m3/lens	0.84 MWh/IR Lens
2017	0.090 m3/lens	1.289 MWh/IR Lens
2018	-	-
2019	0.020 m3/lens	0.246 MWh/IR lens

Operator's comments :

Total 17681: Typically Gallium Arsenide Lens: 36.2g from a 70g blank. Viewed as the typical lens and produced in volume.

17681 lenses as defined in the permit have been processed throughout 2019; this is 18% of the lens total processed on site at St Asaph. By dividing the defined permitted lens against the Optical Shop meter readings and MWh this has generated this specific usage figure.

Increased efficiency can be attributed to reduced puck sizes and new machinery and processing equipment

Signed .....
(Paul Carline Quality System Manager)

Date 12/2/20