

EA Annual
Submissions

Matthew Kelk
Natural Resources Wales
Chester Road
Buckley
CH7 3AJ
Flintshire

Your Ref: LP 3738GG (BX4666IZ)

Date: 4th February 2016

Subject: 2015 Annual Submissions

Dear Matthew Kelk,

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

As you will see from the below report and also the already supplied Emissions Report the Total Particulate Matter and VOC emissions have not exceeded the permitted limit. Calculations that led to these conclusions have been carried out in accordance with Note 2, Schedule 2 – Reporting of monitoring Data.

Due to Thallium & Gallium not being machined during the time that ESG Ltd conducted the Emissions monitoring estimation for the g/annum has been carried out.

Thallium & Gallium make up around 10% of the materials. Selenium was not being machined during the time of the monitoring therefore; an estimate has also been made based on an average of the previous 2 year's reports.

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

Yours Sincerely,



Debbie Roberts
Environmental & COSHH Engineer

EA Annual Submissions

Please refer to ESG Limited Report to reinforce the Data used and contained below.

Permit Number: BX4666IZ Operator: Qioptiq LTD, St Asaph
Facility: St Asaph, Infra Red Optics Form Number: AI – Air

ANNUAL: Reporting of emissions to air for the period from 01/01/15 to 31/12/15

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/m ³	60 Minutes (1442 LTR)	Total Annual: 409.05g Total: 0.09g/hr	BS EN 13284-1	16/11/15 10:22-11:22	-
A5	Particulate Matter	1 mg/m ³	60 Minutes (1303 LTR)	Total Annual: 454.5 g Total: 0.10g/hr	BS EN 13284-1	18/11/15 08:00-09:00	-
A7	Particulate Matter	1 mg/m ³	60 Minutes (1409 LTR)	Total Annual: 1090.8g Total: 0.24g/hr	BS EN 13284-1	16/11/15 13:10-14:10	-
A10	Particulate Matter	1 mg/m ³	60 Minutes (1644 LTR)	Total Annual: 590.85 g Total: 0.13g/hr	BS EN 13284-1	16/11/15 11:45-12:45	-
A2,A5,A7,A10 COMBINED	Particulate Matter (g/annum) (See Note 1)	-	NA	2545.2g/annum	BS EN 13284-1		-
A2	White Spirit, expressed as C (mg/m ³)	-	30 Minutes (1.4 LTR)	Annual: 231.80kg Total: 51g/hr	BS EN 13649	16/11/15 11:00-11:30	-
A10	White Spirit, expressed as C (mg/m ³)	-	30 Minutes (1.6 LTR)	Annual: 122.72kg Total: 27g/hr	BS EN 13649	16/11/15 11:45-12:15	-
A2	Specified Metals (mg/m ³)	-	60 Minutes (1442 LTR)	Total Annual: 0.909g (As) Total: 0.0002g/hr	BS EN 14385	16/11/15 10:22-11:22	-
A5	Specified Metals (mg/m ³)	-	60 Minutes (1303 LTR)	Total Annual: 0.909g (As) Total: 0.0002g/hr	BS EN 14385	18/11/15 08:00-09:00	-
A7	Specified Metals (mg/m ³)	-	60 Minutes (1409 LTR)	Total Annual: 1.82g (As) Total: 0.0004g/hr	BS EN 14385	16/11/15 13:10-14:10	-
A10	Specified Metals (mg/m ³)	-	60 Minutes (1644 LTR)	Total Annual: 0.909g (As) Total: 0.0002g/hr	BS EN 14385	16/11/15 11:45-12:45	-

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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)	-	Not machined N/A	Total Annual: Total Annual: <1 g/annum	N/A	-	Estimate
A2,A5,A7,A10 COMBINED	Gallium and its compounds (g/annum)	-	N/A	Total Annual: <1 g/annum	N/A	-	Estimate
A2,A5,A7,A10 COMBINED	Selenium and its compounds (g/annum)	-	N/A	Total Annual: <1 g/annum	N/A	-	Estimate
A2,A5,A7,A10 COMBINED	Arsenic and its compounds (g/annum)	-	N/A	Total Annual: 4.55g/annum	N/A	-	
Installation A2 as C (A2, A10, A11)	Volatile Organic Compounds kg/Annum	-	N/A	Annual: kg/annum	N/A		
A11	VOC	75 mg/m3	30 Minutes (14.45 Litres)	Annual: :77.27 kg Total: 17g/hr	BS EN 13649	17/11/15 13:33-14:03	
A2	Extraction Rate (m ³ s ⁻¹)		N/A	3.3	N/A	16/11/15 10:22-11:22	
A5	Extraction Rate (m ³ s ⁻¹)		N/A	3.4	N/A	18/11/15 08:00-09:00	
A7	Extraction Rate (m ³ s ⁻¹)		N/A	5.67	N/A	16/11/15 13:10-14:10	
A10	Extraction Rate (m ³ s ⁻¹)		N/A	6.10	N/A	16/11/15 11:45-12:45	
A11	Extraction Rate (m ³ s ⁻¹)		N/A	3.2	N/A	17/11/15 13:33-14:03	

Operator's comments:

Final annual total figures are based on 4545 operating hours calculated against ESG g/hour result. These operating hours are an average annual figure based on a department operating 2 shifts a day at 7 ½ hours each over 303 days (Sundays x 52, and 10 day Christmas shut down has not been included).

(g/hour x 4545) = Annual Total in g/annum

Signed
(Debbie Roberts, Environmental & COSHH Engineer)

Date 04/02/16

EA Annual Submissions

ANNUAL: Reporting of emissions to sewer for the period from 01/01/15 to 31/12/15 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	72	Severn Trent Labs PLC UKAS 1223	13/01/15 14:20
S1	Chemicals Oxygen Demand	3000	400	Severn Trent Labs PLC UKAS 1223	19/02/15 09:00
S1	Chemicals Oxygen Demand	3000	302	Severn Trent Labs PLC UKAS 1223	13/03/15 11:00
S1	Chemicals Oxygen Demand	3000	-	Severn Trent Labs PLC UKAS 1223	Not Received
S1	Chemicals Oxygen Demand	3000	-	Severn Trent Labs PLC UKAS 1223	Not Received
S1	Chemicals Oxygen Demand	3000	108	Severn Trent Labs PLC UKAS 1223	19/06/15 11:40
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	03/07/15 13:10
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	14/08/15 09:15
S1	Chemicals Oxygen Demand	3000	-	Severn Trent Labs PLC UKAS 1223	Not Received
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	09/10/15 13:25
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	17/11/15 11:31
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	11/12/15 10:53

Signed *Debbie L. Roberts*
(Debbie Roberts, Environmental & COSHH Engineer)

Date: 04/02/16

EA Annual Submissions

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

Annual: Reporting of Water Usage for the year 2015

Water Source	Usage (m ³ /year)	Specific Usage (m ³ /unit output)
Mains water	376.2	0.067
TOTAL WATER USAGE	376.2	

Operator's comments :

Using the water meter readings which are strategically placed in all key areas of the optical shop an accurate estimate of the consumption of water per unit is as follows:
5637 lenses as defined in the permit have been processed throughout 2015; this is 11% of the 53167 lens grand total which were processed on site at St Asaph. By dividing the defined permitted lens against the Optical Shop meter readings has generated this specific usage figure.

Signed  Date 04/02/16
(Debbie Roberts, Environmental & COSHH Engineer)

EA Annual Submissions

Facility: St Asaph, Infra Red Optics

Form Number: E1 – Energy

Annual: Reporting of Energy Usage for the year 2015

Energy Source	Energy Usage		CO2 Produced (Tonnes)
	Quantity	Primary Energy (MWh)	
Electricity *	1529	3669	826
Natural Gas	571	571	105
TOTAL	2100	4240	931

* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments:

Electricity Total: 10919 MWh with 14% installation estimate = 1529 MWh.
Gas Total: 2571 with 19% of installation estimate = 571 MWh

Signed 
(Debbie Roberts, Environmental & COSHH Engineer)

Date: 04/02/16

EA Annual Submissions

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

Annual: Reporting of Waste disposal and recovery for the year 2015

Waste Description	Disposal Route	Tonnes	Recovery Tonnes
Hazardous Waste Total	Segregation and recycling facility, landfill.	36.12	0.345
Non-hazardous Waste (40% of Site Total)	Segregation and recycling facility, landfill.	34.82	27.40
TOTAL:		73.44	27.75

Trends in Waste Disposal and Recovery Year	Parameter	TOTAL N/H Waste (Tonnes)
2006	Total Hazardous Waste (Tonnes)	40.7
2007		38.9
2008		45.2
2009		44.2
2010		41.4
2011		44
2012		35.48
2013		39.00
2014		39.01
2015		34.82

Operator Comments:

ASH Waste Services released their recycling figures which had a mean average of 76% recovery rate for general waste, for the purpose of this report 76% has been used to calculate the recycling figures. Cardboard and Paper have been recycled at a 100% recovery rate. Wood has been recycled at 99% recovery rate.

The Optical Shop accounts for an estimated 40% of Qiopiq's total hazardous waste (90.3).

Signed
(Debbie Roberts, Environmental & COSHH Engineer)

Date

04/02/16

Facility: St Asaph, Infra Red Optics

Form Number: P/1 Performance

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Annual: Reporting of other performance indicators for the period 01/01/15 to 31/12/15

Parameter	Units
Water Usage	376
Energy Consumption	4240

Trends in Performance	Environmental	
Year	Water Consumption Per Infra Red Optic	Energy Consumption Per Infra Red Optic
2006	0.0303 m3 / lens	0.28 MWh / IR Lens
2007	0.0167 m3 /lens	0.213 MWh / IR Lens
2008	0.0240 m3 /lens	0.512 MWh / IR Lens
2009	0.0404 m3 /lens	0.553 MWh / IR Lens
2010	0.124 m3 / lens	0.765 MWh / IR Lens
2011	0.077 m3 / lens	0.677 MWh / IR Lens
2012	0.011 m3 / lens	0.369 MWh / IR Lens
2013	0.012 m3/ lens	0.471 MWh/ IR Lens
2014	0.084 m3/lens	0.824 MWh/IR Lens
2015	0.066 m3/lens	0.752 MWh/IR Lens

Operator's comments :

Total 5637: Typically Gallium Arsenide Lens: 36.2g from a 70g blank. Viewed as the typical lens and produced in volume.

5637 lenses as defined in the permit have been processed throughout 2015; this is 11% of the lens grand total which were 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.

Signed 
 (Debbie Roberts, Environmental & COSHH Engineer)

Date 04/02/16

Permit Reference Number: JP3536LS

Operator: Qioptiq Ltd

Installation: St Asaph Lens Coating

Form Number: L1

Reporting of Compliance with Low Impact Installation criteria

Criteria	Description	Demonstration of Compliance
Raw materials:	The installation must not release more than 20m3 of water per day as waste water or effluent. Not account need be taken of the volume of water exported from the installations as product.	The water meter reading at the end of 2015 was 224 M3 Water consumption for the period is 22m3.
Techniques to prevent and reduce waste arising and emissions:	The installation must comply with the criteria in this guidance without having to rely on active abatement. In particular, releases must not be dependent on continuing or correct operation of equipment.	This is compliant in accordance with the Low Impact Assessment submitted to the Environment Agency in 2006. The annual monitoring of emission and waste generation is in accordance with permit requirements.
Waste Production:	The installation must not give rise to more than 1 tonne of controlled waste per day, averaged over a year, with not more than 20 tonnes being released in any one day. No more than 1% should be Hazardous waste.	Contaminated tissues =400kg Estimated commercial waste 100kg Total waste = 500kg
Energy Consumption:	The installation must not consume energy at a rate greater than either 1MW or, if the installation uses a combined heat and power installation to supply any internal process heat, 10MW, or 3MW if fuelled by waste oil.	As per attached energy usage report Consumption below 1MW limit.

Signed..........
(authorised to sign as representative of the Operator)

Date.....04/02/16.....

