CONSOLIDATED PERMIT

Hereby Permit

British Crystal Limited
Unit 14 Pedmore Road Industrial Estate
Brierley Hill
West Midlands DY5 1TJ

To operate a Part B Installation

Under The Provisions of

THE POLLUTION PREVENTION AND CONTROL ACT 1999

ENVIRONMENTAL PERMITTING (ENGLAND AND WALES) REGULATIONS 2010 (AS AMENDED)

Permit Reference Number

PB/98

Date Initial Permit Issued
31st July 2006

Variation Notice and Consolidated Permit issued
17th July 2013

T. Glews.

… ……**Dated**:…17th of July.. 2013
T Glews, Environmental Protection Manager
(Authorised to sign on behalf of Dudley Metropolitan Borough Council)

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Introductory Note to Permit

This Environmental Permit (The Permit) is issued by Dudley Metropolitan Borough Council (the Council) under Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2010 (As Amended) (S.I. 2010 No.675), to operate an installation prescribed in Part 2 to Schedule 1 of those Regulations, to the extent specified in the conditions of this permit.

The requirements of this Permit shall be effective from the date of service unless otherwise specified within the Permit. Where a Variation Notice has been served the conditions contained within that Variation Notice shall be effective from the date that the Notice is served, unless a specific implementation date is allocated to specific conditions.

For the purpose of this permit the legal operator of the Installation is British Crystal Limited, Unit 14, Pedmore Road Industrial Estate, Brierley Hill West Midlands DY5 1TJ (company no: 5407951)

Description of Installation

This installation falls within the definition of Part 2, Chapter 3, Section 3.3 Part B (b) of Schedule 1 of the Environmental Permitting (England and Wales) Regulations 2010 (as amended).

Lead glass is manufactured at the installation using recycled lead glass cullet (previously melted lead glass). Two gas fired closed pot furnaces are used for the lead glass melting operation, which each have a capacity of 500kg. Normally, only one furnace is used for the lead melting operation, but both furnaces can be used if necessary. The pot within the furnace is brought up to temperature over one to two weeks after which the cullet is gradually melted. The molten glass is then gathered manually and formed into a variety of lead glass items. Further cullet is then added to melt for further lead glass production. Typically, a pot within the furnace will last for approximately 80 melts (i.e. approximately 40 weeks based on two melts per week) before it requires replacing.

Audible high and low temperature alarm systems are fitted to both furnaces. The alarms are set to activate at temperatures below 1150°C and above 1430°C and are also linked to contact an external alarm monitoring company (Redcare) who are notified if the alarms activate and would contact one of three keyholders by telephone in the event of alarm activation. The alarm system has a battery back up so would still operate in the event of a power failure.

Each furnace is provided with extraction ducting which exhausts directly to atmosphere through the roof. The ducting serving the furnaces is vented with natural air flow but this shall be provided with a local extract ventilation system by 30th September 2013 as required by Condition 2.1 of this Permit.

Following the lead glass melt, the finished items are then placed into an electrically heated annealing oven which removes stresses inherent within the glass. The annealing oven is not ventilated directly to air. The annealing technique is to reheat the glass pieces to 475°C which is below the softening temperature and then to cool slowly through the transition temperature of 380°C then more rapidly back down to room temperature. This technique produces the finished lead glass blanks.

The finished blanks are then either sold as they are or marked and cut into lead crystal products on cutting lathes. The cutting lathes are provided with water to suppress emissions of lead glass dust produced from the cutting process. Local extraction ventilation is also provided to each glass cutting

station which captures particulate matter and ducts it to a wet arrestor unit located externally to the building. The wet arrestor unit exhausts excess air to the atmosphere via a chimney stack.

The cut glass products are polished by immersion into a still acid bath containing a mixture of hydrofluoric and sulphuric acid. Fume from the acid polishing process is captured by local extraction ventilation and directed to an acid fume scrubbing unit before being emitted to air via a chimney stack.

STATUS LOG			
Detail	**Reference**	**Date**	**Comments**
Deemed application made	PB/98	1st April 2005	
Initial Permit Issued	PB/98	31st July 2006	
Variation Notice Issued	WK/200744372/PDR	10th September 2007	
Variation Notice and Consolidated Permit issued	WK/200839393 PB/98	28th October 2008	Update installation description & permit conditions and transfer to Environmental Permit by virtue of Regulation 69 of the Environmental Permitting (England and Wales) Regulations 2007
Notice of Transfer Issued	WK/201321960	16th July 2013	Transfer Environmental Permit from Staffordshire Crystal Limited to British Crystal Limited.
Variation Notice and Consolidated Permit issued	PB/98/ WK/201322023	17th July 2013	Update installation description, permit conditions and reference to the Environmental Permitting (England and Wales) Regulations 2010 (as amended)

CONDITIONS

1.0 The Permitted Installation

1.1 The permitted installation shall be comprised of the activities and associated activities specified in Table 1.1

TABLE 1.1	
Activity listed in Schedule 1 of The Environmental Permitting Regulations and Associated activities	**Description of specified activity**
Section 3.3, Part B (b) – Manufacturing Glass involving the use of a lead compound.	The manufacture of lead crystal glass.
Section 3.3, Part B (d) – Polishing of glass products during the course of manufacture using hydrofluoric acid	The acid polishing of lead crystal glass products.
Directly Associated Activity - Handling of raw materials	The handling of raw materials including receipt through to sending material via a designated process route.
Directly associated Activity: - The cutting of glass	Decorating glass by cutting on cutting lathes
Directly Associated Activity – Handling of waste materials	Collection and storage of waste materials.

1.2 The activities authorised under condition 1.1 shall not extend beyond the site, being the area shown hatched on the Site Location Plan PB/98 in Appendix 1 to this permit.

1.3 If the operator proposes to make a change in operation of the installation, he must, at least 28 days before making the change, notify the regulator in writing. The notification must contain a description of the proposed change in operation. It is not necessary to make such a notification if an application to vary this permit has been made and the application contains a description of the proposed change. In this condition 'change in operation' means a change in the nature or functioning, or an extension, of the installation, which may have consequences for the environment.

1.4 The best available techniques shall be used to prevent or, where that is not practicable, reduce emissions from the installation in relation to any aspect of the operation of the installation which is not regulated by any other condition of this permit.

2.0 IMPROVEMENT PROGRAMME

2.1 The operator shall install mechanical extraction to the chimney stacks exhausting from the two lead melting furnaces which is capable of achieving an exit velocity of greater than 15metres/second during normal operation. Details of the proposed location and specification of the extraction system shall be provided to the Council in writing and approved at least 28 days prior to its installation. The extraction system shall be fully operational in both furnaces by 30th September 2013.

3.0 EMISSION LIMITS AND CONTROL

3.1 All emissions into the air from any process exhaust points or building openings, other than condensed water vapour, shall be free from persistent visible emissions and droplets.

3.2 The limits for emissions to air from the chimney stacks serving the furnaces shall not exceed those specified in Table 3.1 below.

TABLE 3.1 – Emissions from lead melt furnaces			
Substance	**Mass Emission Value**	**Emission Concentration Limit**	**Monitoring frequency**
Lead and its compounds calculated as the element	25g/hour	5 mg/m^3	Manual extractive – Annual
Particulates	0.5kg/hour	20 mg/m^3	Manual extractive – Annual
Fluoride (expressed as hydrogen fluoride)	50g/hour	5 mg/m^3	Manual extractive – At the request of the Council
Chloride (expressed as hydrogen chloride)	N/A	10 mg/m^3	Manual extractive – At the request of the Council
Nitrogen oxides	5kg/hour	500 mg/m^3	Manual extractive – At the request of the Council
Sulphur oxides expressed as sulphur dioxide	5kg/hour	250 mg/m^3	Manual extractive – Determination by fuel analysis on change of fuel and at the request of the Council

Where mass emission values are specified in Table 3.1, the emission limits for the substances specified in the table shall only apply if their measured mass emission exceeds the mass emission value. Where a mass emission limit is used to derogate the emission concentration limit, monitoring at the frequency stated in Table 3.1 must be carried out to demonstrate compliance.

The concentration of substances measured in accordance with this condition shall be expressed at reference conditions 273K and 101.3KP, measured dry. The–concentrations shall also be normalised to 13% oxygen content measured dry prior to takedown. Measurement of emission concentration and mass emission values for batch furnaces during the cooling stage should not be corrected for oxygen content after takedown has been initiated.

3.3 The limit for emissions to air from the chimney stack serving the acid fume scrubbing unit shall not exceed the limit specified in Table 3.2 below.

TABLE 3.2 – Emissions from acid fume scrubbing unit		
Substance	**Emission Limit**	**Monitoring frequency**
Total fluoride emissions expressed as hydrogen fluoride	5 mg/m^3	Manual extractive – Annual Indicative testing - Weekly

The concentrations of substances measured annually in accordance with this condition shall be expressed at reference conditions 273K, 101.3 kPa with oxygen and water references which shall correspond to the normal operating conditions of the acid fume scrubbing unit.

3.4 The acid polishing process shall be permanently ducted to an acid fume scrubbing unit to minimise emissions of hydrogen fluoride to atmosphere and to comply with the emission limit given in table 3.2 above.

3.5 The limit for emissions to air from the chimney stack exhausting the wet scrubbing unit serving the local extraction ventilation from the glass cutting lathes shall not exceed the limits specified in the Table 3.3 below.

TABLE 3.3 – Emissions from wet scrubber serving cutting lathes		
Substance	**Emission Limit**	**Monitoring frequency**
Lead and its compounds calculated as the element	5 mg/m^3	Manual extractive – Annual
Particulates	20 mg/m^3	Manual extractive – Annual

3.6 Exhaust flow rates for emissions shall be consistent with efficient capture of pollutants. The introduction of dilution air to achieve emission concentration limits contained within this Permit is not permitted

3.7 A mist eliminator shall be provided at all times to the acid fume scrubbing unit to minimise emissions of particulate matter in the form of droplets.

4.0 MONITORING SAMPLING AND MEASUREMENT OF EMISSIONS

4.1 An emissions monitoring programme shall be implemented and maintained which ensures that emissions to air as specified in Tables 3.1, 3.2 and 3.3 shall be monitored in accordance with the frequency stated therein unless otherwise agreed in writing with the Council.

Non-continuous extractive monitoring shall be undertaken by 31st October 2013 and at the frequency stated in Tables 3.1, 3.2 and 3.3 thereafter.

4.2 The Operator shall notify the Council in writing at least 21 days before commencing any monitoring exercise undertaken in accordance with Condition 3.1. The notification shall include the name and address and any other relevant details of the person(s) or company engaged to undertake the monitoring exercise; the time, and date, on which the monitoring is scheduled to begin, together

with a full specification of the monitoring programme including the proposed sampling and analysis techniques.

4.3 All non-continuous emission monitoring of particulate matter shall be carried out according to the main procedural requirements of BS ISO 9096:2003 and/or BS EN 13284-1: 2002, with samples taken during periods of maximum emission

4.4 All non-continuous emission monitoring of lead shall be carried out according to the main procedural requirements of BS EN 14385: 2004, with samples taken during periods of maximum emission.

4.5 All non-continuous emission monitoring of fluoride shall be carried out in accordance with the relevant CEN standard where available, or otherwise an equivalent methodology agreed with the Council.

4.6 During monitoring exercises, the process being monitored must be operated under normal conditions unless otherwise agreed in writing with the Council. The monitoring shall be undertaken at critical emission times when cullet is added to the furnace for the purposes of lead glass production.

4.7 The results of emissions monitoring undertaken in accordance with Condition 3.1 together with details of the process conditions at the time monitoring is undertaken, shall be forwarded to the Council within 28 days of the completion of the monitoring unless otherwise agreed. A record of the results shall be maintained in accordance with Condition 7.1 of this Permit.

4.8 Adverse results from any monitoring activity shall be investigated by the operator as soon as the monitoring data has been received. The operator shall:

- Identify the cause of the adverse result/s and take corrective action,
- Record as much detail as possible regarding the cause and extent of the problem, and the action taken by the operator to rectify the situation,
- Re-test to demonstrate compliance as soon as possible; and
- Notify the Council of the results of the re-test as soon as the data has been received.

4.9 No result should exceed the emission concentration limits specified in Tables 3.1, 3.2 or 3.3, except where either:

a) data is obtained over at least 5 sampling hours in increments of 15 minutes or less; or

b) at least 20 results are obtained where sampling time increments of more than 15 minutes are involved; AND in the case of (a) or (b)

c) no daily mean of all 15-minute emission concentrations should exceed the specified emission concentration limits during normal operation (excluding start-up and shut-down); and

d) no 15-minute mean emission concentration should exceed twice the specified emission concentration limits during normal operation (excluding start-up and shut-down)

4.10 Adequate and safe facilities to enable monitoring to be carried out in accordance with Condition 4.1 shall be provided.

4.11 The liquor in the acid fume scrubbing unit shall be indicatively tested for pH once per week. If the pH test indicates the pH is below 7, remedial action shall be taken to decrease the acidity of the liquor within the acid fume scrubbing unit to a pH above 7. A record of this indicative testing shall be recorded in accordance with Condition 7.1.

4.12 The concentration of hydrogen fluoride in the exhaust gases from the chimney stack serving the acid fume scrubbing unit shall be subject to a weekly indicative test using an appropriate absorption tube. The result of the test shall be recorded in accordance with condition 7.1

4.13 A daily visual assessment of contained and fugitive emissions shall be undertaken to ensure that all final releases to air are compliant with Condition 3.1 of this Permit. The exhaust points and buildings shall be observed for any visible emissions to air once per shift for a period of at least 5 minutes. The observations shall be made from a position providing an unobstructed view of the point of the emission to air by a responsible person who has been instructed to carry out these duties. A record of all observations shall be recorded in accordance with Condition 7.1. The records shall include an assessment of the nature and severity of any emission observed.

The Council shall be notified as soon as practicable if emissions to air are observed which may contravene any condition of this Permit and immediate action shall be taken to determine the cause of the emission and to prevent or minimise further emissions.

5.0 PROCESS CONTROLS

5.1 Furnaces designated for lead glass manufacture shall be provided with temperature recorders and audible high temperature alarms.

5.2 The raw materials used in the installation and all waste materials produced by the installation shall be delivered, stored and handled with care to prevent or reduce to an absolute minimum any emissions to air. The transfer of acids must be strictly controlled to avoid spillages.

5.3 Spillages of liquids and finely divided materials shall be cleaned up immediately. Liquid spillages shall be contained and cleaned up by the use of a suitable absorbent material. Spillages of finely divided materials shall be removed by the use of vacuum cleaning, wet cleaning methods or other appropriate techniques. Dry sweeping of dusty materials shall not be permitted.

5.4 Accumulations of waste particulate matter shall be collected and transported around the site in covered containers or sealed bags. Accumulations of waste particulate matter and waste packaging materials shall be stored whilst awaiting removal for disposal in covered containers or sealed bags within a waste materials skip or inside an enclosed building

5.5 All areas where drums of chemicals are stored shall be provided with spillage containment systems or bunding to completely contain any spillages.

5.6 All above ground chemical storage tanks shall be completely contained by bunding. The bunding provided shall conform to the following requirements;

- impervious and resistant to the chemicals in storage
- capable of holding 110% of the capacity of the largest storage tank

All bunds shall be inspected weekly and any necessary maintenance and repairs carried out immediately.

5.7 Chimneys exhausting the furnaces, wet arrestor serving the glass cutting lathes and acid fume scrubbing unit shall not be fitted with any restrictive plates, caps or cowls at the final opening other than a cone to effect adequate efflux velocity. The final discharge to air shall be vertically upwards.

5.8 Emissions from the chimney stacks exhausting the furnaces shall achieve an exit velocity which is greater than 15 metres/second during normal operation. The exit velocity of emissions from the chimney stack exhausting the wet arrestor serving the glass cutting lathes and acid fume scrubbing unit shall not exceed 9 m/s in order to minimise droplet carryover.

5.9 All extraction ducting serving emission points to air shall be subject to weekly visual inspections to ensure they are maintained in a gastight condition. All inspections and details of any defects and remedial works carried out to maintain the ducting in a gastight condition shall be recorded in accordance with condition 7.1.

6.0 GENERAL CONDITIONS

6.1 The Operator shall maintain and implement written procedures to ensure that regular cleaning and effective preventative maintenance in accordance with the manufacturer's instructions is employed on all plant, equipment and technical means concerned with the production, capture, transport, control and exhaust of emissions which could lead to an adverse impact on the environment. A record of relevant maintenance shall be maintained in accordance with Condition 7.1.

6.2 Staff at all levels shall receive the necessary formal training and instruction in their duties relating to control of the process and emissions to air. Particular emphasis shall be given to training for start-up and shut-down and action required to minimise emissions during abnormal operating conditions. All employees shall be fully conversant with all aspects of any Permit conditions which are relevant to their duties and shall be provided with appropriate training and written operating instructions to enable them to carry out their duties. A record shall be maintained of all relevant training provided to staff in accordance with condition 7.1.

6.3 Essential spares and consumables shall be held on site or shall be available from a guaranteed supplier at short notice so that plant breakdown can be rectified rapidly.

6.4 Any malfunction which results in emissions to atmosphere which are likely to cause an adverse effect on the local community shall be reported to the Council as soon as practicable. Immediate action shall be taken to prevent or minimise any further emissions. A record shall be made of the incident in accordance with condition 7.1.

7.0 RECORDS

7.1 The Operator shall ensure that all records required to be made by this Permit and other records made by it in relation to the operation of the Installation shall:

(a) be made available for inspection by the Council at any reasonable time;

(b) be supplied to the Council on demand and without charge;

(c) be legible;

(d) be made as soon as reasonably practicable;

(e) indicate any amendments which have been made and shall include the original record wherever possible; and

(f) be retained at the Installation, or other location agreed by the Council in writing, for a minimum period of 2 years from the date when the records were made, unless otherwise agreed in writing.

End of Permit Conditions.

Appendix 1 - Site Plan PB/98 British Crystal Limited