Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2007

Queensferry Mineral Fibre Works

Knauf Insulation Ltd
Chemistry Lane
Queensferry
Deeside
Flintshire
CH5 2DA

Variation Number

EA/EPR/BR9383ID/V003

Permit number

BR9383ID / NP3835SW

Queensferry Mineral Fibre Works
Permit number EA/EPR/BR9383ID/V003

Introductory note

This introductory note does not form a part of the permit

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows.

The activities covered by this permit are the manufacture of mineral wool insulation materials for use in structural, fire protection, thermal and acoustic insulation applications, as well as hydroponic growing media for the horticultural industry. The raw materials used in the furnace are:

- Coke (with a maximum sulphur content of 1% which is used as the fuel in the reducing melt furnace (cupola))
- Basalt, consisting of mainly calcium magnesium silicate and sodium aluminosilicate (though may contain significant iron and titanium bearing materials)
- Dolomite rock that consists mainly of calcium and magnesium carbonate, limestone and blast furnace slag from iron smelting (comprising calcium and aluminium silicates)
- Quartzite, comprising silica fused together by ferric oxide and calcium / magnesium silicates.
- Blast furnace slag together with steel slag

The raw materials above are stored in concrete bunkers and are loaded into the raw material handling conveyors and weighing plant by loaders. Delivery to site is in 20 to 25 tonne tipper lorries.

- Liquid oxygen. This is used to enrich the combustion (cupola) air fed to the furnace and generates temperatures greater than 2000^{0}C to melt the stone and is stored in a pressure vessel which together with the vaporiser is sited within a lockable steel mesh fenced enclosure.
- Organic binder to bind the fibres together

The installation manufactures mineral wool (stonewool) from molten stone produced by melting blast furnace slag and natural stone together in a blast furnace, with an emergency by-pass stack. The stone, slag and coke are weighed out and fed into the furnace by long overhead conveyors. They are then weighed and blended to a discrete formulation and fed to the cupola. The heat for melting the stone is produced by burning the coke in a hot-blast furnace with oxygen enriched air. Prior to melting, the carboniferous rocks are thermally calcined and subsequent reactions between the resultant oxides and the basalt rock produce the required melt.

Molten stone flows from the cupola by means of water cooled troughs onto the forming spinner. This spinner has wheels which rotate at high speed (5000rpm). Stone melt is spun into stone wool fibre. The fibre is then projected by high-pressure air in towards the collection chamber. As the fibre is projected to the collection chamber, thermal setting resin is applied to the fibre. The furnace waste gases are filtered to remove dust then passed through an oxidiser burner.

The fibre is then collected on a moving grate which is under suction to allow the fibre to be laid down under controlled conditions into a thin blanket. The blanket is folded back upon itself on the forming belt to give the required weight, density and thickness per square metre. The waste gases are removed and passed through a wet scrubber.

The blanket passes into a heated oven for curing, allowing the stone wool to establish the required physical properties, for example for rolled products, resilience and for slab products, integrity.

After the stone wool is cured in the oven the product passes over a cooling zone that draws ambient air through the product to cool the stone wool. Oven waste gases are burnt in an oxidiser tube. The product is then trimmed by means of saws to product width requirement and is then cut to size, using cross cut sawing devices, which give the product the length requirement. Scrap product is recycled back into the process using an integrated fibre recovery and recycling plant.

The stone wool products then pass into the packaging area where rolls are rolled and bagged and slabs are stacked and packaged ready for despatch to the customer.

Wastewater is recycled in the binder application and to be reused has to be filtered to remove stone wool.

As described above an organic binder is used to bind the fibres together. Historically this organic binder has been phenol formaldehyde based. This variation allows the Operator to use a new ecose binder which will eventually replace the phenol formaldehyde binder. It is expected that for approximately 12 months after the issue of the Permit both types of binder will be used alternately. Two new storage tanks have been installed in a bunded area to contain the ingredients of the new organic binder.

The standard variation is issued under regulation 20 of The Environmental Permitting (England and Wales) Regulations 2007 to vary the conditions of Permit BR9383ID issued under the Pollution Prevention and Control (England and Wales) Regulations 2000 to operate an installation.

Status Log of the permit		
Detail	**Date**	**Comments**
Application BR 9383	Received 06/08/02	
Supplementary Information	Received Sept 03	Included confidential material
Supplementary Information	Received Nov 03	Included confidential material
Response to Schedule 4 Part 1 Notice	Received 14/04/04	
Permit issued	25/6/2004	
Application for variation NP3835SW	Received 07/12/04	
Supplementary information	Received 18/02/05	
Variation NP3835SW	22/02/05	
Application for Variation EA/EPR/BR9383ID/V003	Received 11/09/08	Included confidential material
Supplementary Information	Received 27/11/08	
Variation EA/EPR/BR9383ID/V003 Issued	12/02/09	

End of Introductory Note

Permit

Permit number
BR9383ID

Variation Number
EA/EPR/BR9383ID/V003

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2007

Knauf Insulation Ltd ("the operator"),

of/ whose registered office (or principal office) is

PO Box 10
Stafford Road
St Helens
Merseyside
WA10 3NS

company registration number 1926842

to operate a facility comprising an installation at

Chemistry Lane
Queensferry
Deeside
Flintshire
CH5 2DA

to the extent authorised by and subject to the conditions of this permit.

Name	Date
A Weedy	12th FEB 2009

Ann Weedy

Authorised on behalf of the Agency

SCHEDULE 1 - CONDITIONS TO BE DELETED

1. Conditions 1 to 6 inclusive and Schedules 1 to 5 inclusive, in PPC Permit number BR9383ID issued on 25th June 2004 to Knauf Insulation Ltd and Schedules 1 to 3 inclusive, in PPC variation number NP3835SW issued on 23rd February 2005 to Knauf Insulation Ltd.

SCHEDULE 2 - CONDITIONS TO BE AMENDED

2. None

SCHEDULE 3- CONDITIONS TO BE ADDED

3. Conditions 1 to 4 inclusive and Schedules 1 to 7 inclusive to be added, as attached, on pages 3 to 29 of this Variation Notice.

1 Management

1.1 General management

1.1.1 The activities shall be managed and operated:

(a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and closure and those drawn to the attention of the operator as a result of complaints; and

(b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Accident management plan

1.2.1 The operator shall:

(a) maintain and implement an accident management plan;

(b) review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;

(c) make any appropriate changes to the plan identified by a review.

1.3 Energy efficiency

1.3.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every 4 years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.4 Efficient use of raw materials

1.4.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every 4 years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any appropriate further measures identified by a review.

1.5 Avoidance, recovery and disposal of wastes produced by the activities

1.5.1. The operator shall:

(a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;

(b) review and record at least every 4 years whether changes to those measures should be made; and

(c) take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 2 to this permit.

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Agency.

(b) If notified by the Agency that the activities are giving rise to pollution, the operator shall submit to the Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Agency.

2.3.2 No raw materials or fuels listed in schedule 3 table S3.1 shall be used unless they comply with the specifications set out in that table.

2.3.3 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazard classification associated with the waste; and

(e) the waste code of the waste.

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.3.5 The operator shall review fugitive emissions, having regard to the application of Best Available Techniques, on an annual basis, and a summary report on this review shall be sent to the Agency detailing such releases and the measures taken to reduce them, within 3 months of the end of the reporting period.

2.3.6 Every 24 months, the operator shall review oxides of sulphur emissions, having regard to Best Available Techniques and Air Quality Standards. A summary report on this review shall be sent to the Agency detailing releases and any proposed improvements. The first report shall be submitted by 31st January 2011.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Agency, the operator shall notify the Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 There are no pre-operational conditions

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 4 tables S4.1a - f, S4.2 and S4.3.

3.1.2 The limits given in schedule 4 shall not be exceeded.

3.1.3 Where a substance is specified in schedule 4 table S4.2 and S4.3 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration.

3.1.4 For periodic measurements, compliance shall be determined from the measured value after having subtracted the uncertainty error for the selected method of sampling and analysis for each relevant pollutant.

3.2 Fugitive emissions of substances

3.2.1 Fugitive emissions of substances (excluding odour, noise and vibration) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including those specified in any approved fugitive emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to annoyance outside the site due to odour, submit to the Agency for approval within the period specified, an odour management plan;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 Emergency generators / pumps / alarms / sirens / relief valves shall only be tested between the hours of 10.00 and 17.00 Monday to Friday and not on any Public Holiday.

3.4.3 The operator shall:

(a) if notified by the Agency that the activities are giving rise to annoyance outside the site due to noise and vibration, submit to the Agency for approval within the period specified, a noise and vibration management plan;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the monitoring specified in the following tables in schedule 4 to this permit:

(a) point source emissions specified in tables S4.1a, c, d, f, g, S4.2 and S4.3

(b) ambient air monitoring specified in table S4.4;

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Agency.

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 4 tables S4.1a, c, d, f, g, S4.2 and S4.3 unless otherwise specified in that schedule.

3.5.5 Alternative monitoring methods may be used, if justified and agreed in writing with the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 All records, plans and the management system required to be maintained by this permit shall be held on the site.

4.2 Reporting

4.2.1 All reports and notifications required by the permit shall be sent to the Agency using the contact details supplied in writing by the Agency

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Agency by 31 January (or other date agreed in writing by the Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production /treatment data set out in schedule 5 table S5.2; and

(c) the performance parameters set out in schedule 5 table S5.3 using the forms specified in table S5.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 5 table S5.1;

(b) for the reporting periods specified in schedule 5 table S5.1 and using the forms specified in schedule 5 table S5.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding 4 years, submit to the Agency, within 6 months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 The Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 6 to this permit within the time period specified in that schedule.

4.3.3 Where the Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Agency when the relevant monitoring is to take place. The operator shall provide this information to the Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address;

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.7 Where the operator has entered into a climate change agreement with the Government, the Agency shall be notified within one month of:

(a) a decision by the Secretary of State and the Welsh Ministers not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State and the Welsh Ministers to terminate the agreement; and

(c) any subsequent decision by the Secretary of State and the Welsh Ministers to re-certify such an agreement.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 7 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
S3.4 A(1)(b)	Producing any fibre from any mineral	Melting, forming and finishing stone wool products including emissions control and abatement.
Directly Associated Activity		
Associated activity	Raw Materials	Receipt and handling of raw materials
Associated activity	Waste handling	Collection and storage of waste prior to recovery or removal for disposal

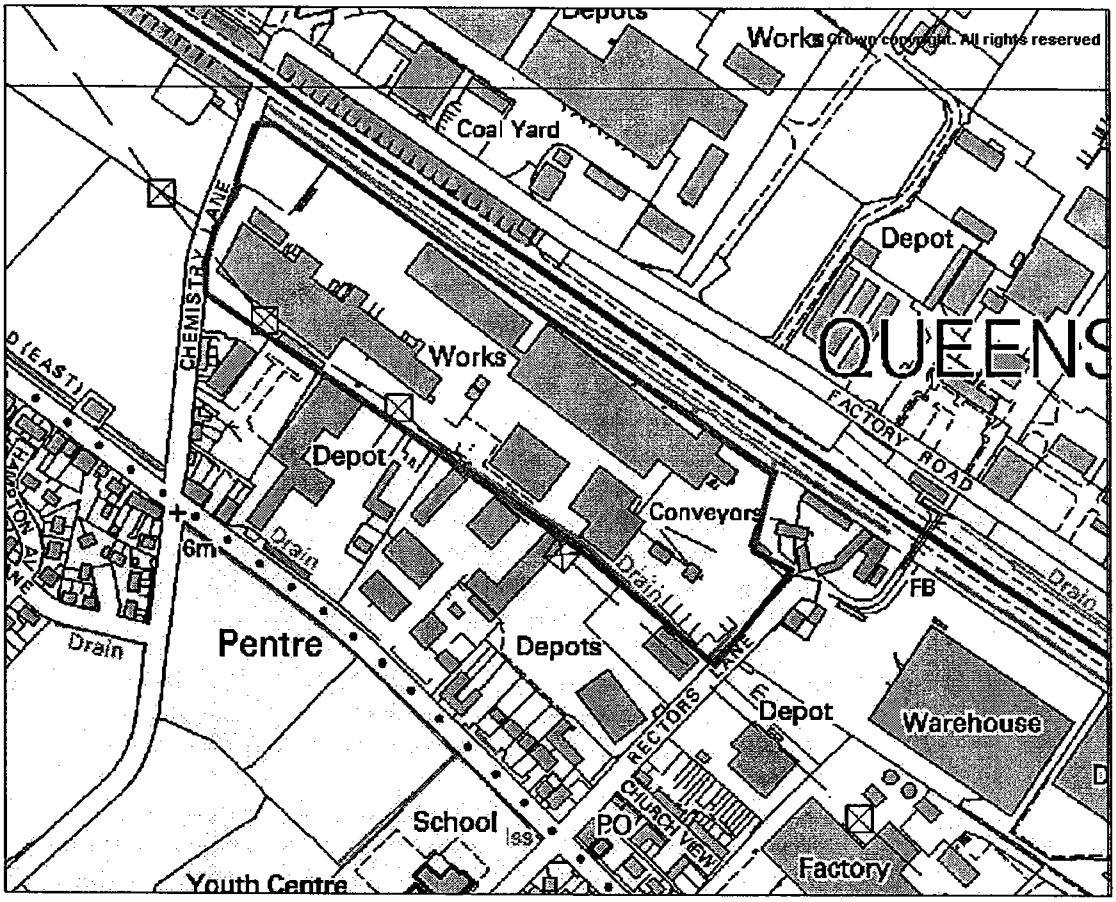
Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to question B2.3 given in sections B2.3 of the application	31/07/02
Supplementary Information	Information provided in Section 2 of the supplementary information	09/03
Supplementary Information	Information provided throughout the document	11/03
Schedule 4 Notice Issued 17th March 2004	Responses to questions 7, 8, 9, 10, 11 and 12	14/04/04
Variation Application NP3835SW	Responses to question C2.1 to C2.12	7/12/04
Variation Application EA/EPR/BR9383ID/V003	Responses to question C2	
Proposed Monitoring Arrangements for Process Emissions 30/07/04	All	Agreed 1/9/04
Queensferry Site Groundwater Baseline Condition Report 29/09/04	All	Agreed 20/10/04
Proposed Groundwater Quality Monitoring Plan 29/09/04	All	Agreed 20/10/04
Improvements to Process Raw Materials Handling to Reduce Emissions 27/8/04	All	Agreed 20/11/04
Queensferry Site Proposed Changes to Melting and Forming 29/09/04	All	Agreed 8/02/05
Queensferry Site Proposed Changes to Product Finishing Plant Report 29/09/04	All	Agreed 8/02/05
Queensferry Site Proposed Accident Management Plan 29/09/04	All	Agreed 8/02/05
Queensferry Site Proposed Timetable for Emissions Sampling Point Improvement 20/11/04	All	Agreed 8/02/05
Queensferry Site Assessment of Ammonia Storage and Handling 30/11/04	All	Agreed 8/02/05
Queensferry Site Proposals to Minimise the Operating Time with the By-Pass Stack Open 30/11/04	All	Agreed 8/02/05
Queensferry Site Review of Process Activities with Regard to the Potential to Cause Odourous Emissions 30/03/05	All	Agreed 16/08/05
Queensferry Site Study Into The Potential Environmental Impact of Raw Materials Used 28/04/05	All	Agreed 16/08/05
Queensferry Site Water Usage Audit 30/12/05	All	Agreed 1/02/06

Queensferry Site Report of Methods of Minimising Discharges of Contaminated Water to Sewer 30/06/05	All	Agreed 16/08/05
Queensferry Site Review of Waste Production 5/05/06	All	Agreed 1/02/06
Queensferry Site Report of an Assessment of Underground Pipes Carrying Waste Water Around the Site 29/09/05, letter 28/10/05	All	Agreed 10/10/05
Queensferry Site Report of an Assessment of Options to Minimise Emissions from the Scrubber and Binder Plant (Emissions C and D) 31/10/05	All	Agreed 1/02/06
Queensferry Site Assessment of Dioxin Emissions from the Cupola Furnace Stack Release Point "A" 8/05/06	All	Agreed 11/07/06
Queensferry Site Noise Management Plan 30/11/05	All	Agreed 1/02/06
Release Point "O" Queensferry Mineral Fibre Works 14/01/09	Explanation relating to the removal of emission point O	
Proposed changes to Process Operation- Permit Number BR9383 4/05/07	All	Agreed 14th May 2007
Definition of "melt" 25/08/04	All	
List of emission points submitted 9/02/09	All	
Drawings titled Knauf Insulation Queensferry Site Plan 2009 and Site Plan 2008 EUETS Carbon Emission Points submitted 9/02/09	Emission Points	

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
1	A report shall be submitted to and agreed in writing by the Agency outlining all of the emissions monitoring methods to be used to all media.	Complete
2	The Operator shall provide a baseline status report which describes the condition of the site in July 2002 based on groundwater monitoring. A copy of the report shall be submitted to the Agency.	Complete
3	The Operator shall submit a Groundwater Quality Monitoring Plan (Site Protection and Monitoring Plan) for ongoing monitoring. A copy of the plan shall be provided to the Agency for agreement prior to implementation.	Complete
4	The operator shall provide a report to the Agency detailing proposals to improve the handling of raw materials and the reduction of emissions from this part of the installation. The report shall include a justification of how the operator believes the proposals represent BAT.	Complete
5	The operator shall provide a report to the Agency detailing proposals of changes to the melting and wool forming plant including minimising potential emissions from this part of the installation. The report shall include a justification of how the Operator believes the proposals represent BAT.	Complete
6	The operator shall provide a report to the Agency detailing proposals of changes to the new product finishing plant including minimising potential emissions from this part of the installation. The report shall include a justification of how the Operator believes the proposals represent BAT.	Complete
7	The Operator shall write and implement an Accident Management Plan to assess the risks and identify risk reduction measures expanding on information given in the application, in accordance with the indicative BAT requirements contained within the relevant sector guidance. A copy of the plan shall be provided to the Agency for agreement prior to implementation.	Complete
8	The Operator shall provide a timetable to ensure that all emissions sample point locations are suitable for the techniques used and representative, having regard to Agency Monitoring Guidance documents M1 and M2. The timetable shall be submitted in writing and agreed in writing by the Agency	Complete
9	The operator shall provide a report to the Agency detailing an assessment of the current arrangements for the storage and handling of ammonia and provide a report to the Agency detailing all options identified as improvements to be made. The report shall be agreed in writing with the Agency prior to implementation.	Complete
10	The Operator shall submit proposals detailing arrangements to minimise by-passing the abatement equipment thus minimising the operating time with the by-pass stack open, having regard to BAT.	Complete
11	The operator shall carry out a review of activities on the installation with regard to their potential to cause odourous emissions. A report shall be submitted to the Agency detailing how odours will be minimised beyond the site boundary.	Complete
12	The operator shall carry out a study into the potential environmental impact of raw materials used on site and provide a report to the Agency.	Complete
13	The operator shall carry out an audit of water use within the process and investigate the potential for increasing the re-use of rainwater and process water, and submit a report to the Agency.	Complete
14	The operator shall investigate methods of minimising discharges of contaminated water to sewer from the process and submit a report to the Agency.	Complete
15	The operator shall carry out a review of waste produced during the process having regards to BAT. A report shall be provided to the Agency detailing options for the reduction of waste production, increasing recycling and recovery of materials and minimising disposal to landfill.	Complete
16	The operator shall carry out an assessment of the integrity of underground pipework carrying waste water around the plant and submit a report to the Agency.	Complete
17	The operator shall carry out an assessment of options to minimise emissions from the scrubber and binder plant (emission points C and D) and provide a report and timetable for implementation of any options identified as BAT.	Complete

18	The operator shall carry out a review and assessment of options, including use of raw materials, for the reduction of emissions of SO_2 from release point A, to meet a release level of 600mg/m^3 by 30th April 2007. A report of options having regard to BAT, shall be submitted to the Agency together with a timetable for meeting the reduced limit.	Complete
19	The operator shall carry out an assessment of dioxin emissions from point A and submit a report to the Agency. The monitoring method used shall be agreed with the Agency.	Complete
20	The Operator shall write and implement a timetabled Noise Management Plan to assess the impact of all of the noise sources identified and listed in the Application for an IPPC Permit, dated July 2002, having regard to Horizontal Guidance H3. The Plan shall include prioritised sources, mitigation and abatement measures to meet indicative BAT requirements as well as monitoring, maintenance and feedback. The Plan shall also include comparative site boundary noise measurements to take account of and monitor upgrade progression. A copy of the plan shall be provided to the Agency for agreement in writing prior to implementation.	Complete
21	The operator shall carry out an H1 assessment having regard to the impact of SO_2 emissions on the River Dee cSAC to the north of the site.	Complete
22	The Operator shall carry out an odour impact assessment in line with Environment Agency guidance H4 to fully assess the impact of the use of the ecose binder with respect to odour. A summary report detailing the findings and a timescale for any improvements highlighted shall be forwarded to the Agency.	31st December 2009
23	The Operator shall assess the impact of the change of binder on the wet scrubber system. A summary report shall be submitted to the Environment Agency including timescales for any improvements highlighted.	31st July 2009
24	The Operator shall review the assessment of options to minimise emissions from the scrubber and binder plant (emission points C and D) carried out in response to improvement condition 17 and provide a report and timetable for any improvements highlighted.	30th November 2009
25	In the 12months following the issue of the Variation the Operator shall carry out an additional two sets of monitoring on emission points C, D, F and G, whilst the new binder is being utilised. Prior to the first set of monitoring the Operator shall submit a monitoring protocol which demonstrates what measures will be used to minimise the affect of carry over from the phenol formaldehyde binder on the results. Monitoring shall be carried out for particulates, VOC, ammonia, formaldehyde, phenol and amines. A report summarising the results shall be submitted to the Environment Agency.	31st March 2009 (protocol) 31st March 2010 (results review)
26	The Operator shall carry out a review of how surface water is managed on site to ensure that only emissions of clean and uncontaminated rainwater is discharged to the controlled waters. A summary of the findings and timetable for any improvements highlighted shall be forwarded to the Environment Agency.	30th June 2009
27	The Operator shall carry out an investigation of methods available to reduce the current NO_x level on emission point A. A report summarising the review and details of any improvements highlighted shall be submitted to the Environment Agency.	28th February 2010
28	Prior to the use of a new biocide on site an assessment on the impact to sewer shall be completed. A summary of the findings and timetable for any improvements highlighted shall be forwarded to the Environment Agency.	Prior to the use of the biocide on site
29	The Operator shall provide a timetable detailing the proposed transfer from phenol formaldehyde binder to solely ecose binder and the combined phase in between.	31st March 2009
30	The Operator shall assess the current practice of continually recirculating the washwater and the impact of this on the emissions to air and sewer. This review shall ensure that this practice does not affect the relevant emission limit values. A report detailing the findings and a timetable for any improvements highlighted shall be forwarded to the Environment Agency.	31st October 2009

Schedule 2 - Site plan



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Schedule 3 - Waste types, raw materials and fuels

Table S3.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Sulphur content of coke	Less than 1.0% by weight

Schedule 4 – Emissions and monitoring

Table S4.1a Point source emissions to air – emission limits and monitoring requirements				
Emission Point ref. & location: **A on plan IPPC Site Plan 2009 Cupola Stack After Oxidiser**				
Parameter	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
Particulate matter	30 mg/Nm^3	Daily average	Continuous	BS ISO 10155
Oxides of nitrogen (expressed as NO_2)	300 mg/Nm^3	Daily average	Continuous	BS EN 15267-3
Oxides of sulphur (expressed as SO_2)	1350 mg/Nm^3	Daily average	Continuous	BS EN 15267-3
Sulphur dioxide	1.8 kg / te	Monthly average	Calculated from continuous monitoring data	Calculated
Carbon monoxide	80 mg/Nm^3	Daily average	Continuous	BS EN 15267-3
Chlorides (expressed as hydrogen chloride)	10 mg/Nm^3		Annually in triplicate	BS EN 1911
Fluorides (expressed as hydrogen fluoride)	5 mg/Nm^3		Annually in triplicate	BS ISO 15713
Hydrogen sulphide	5 mg/Nm^3		Annually in triplicate	US EPA Method 11
Metals (groups 1 & 2)	5 mg/Nm^3		Annually in triplicate	BS EN 14385
Metals (groups 1)	1 mg/Nm^3		Annually in triplicate	BS EN 14385
Dioxins ng/Nm^3	No limit set		Annually	BS EN 1948-1
Particulates	For calibration purposes- no limit		Annually	BS ISO 10155 and BS EN 13284-1
Oxides of Nitrogen	For calibration purposes- no limit		Annually	BS EN 14792
Oxides of sulphur	For calibration purposes- no limit		Annually	BS EN 14791: TGN M21
Carbon Monoxide	For calibration purposes- no limit		Annually	BS EN 15058

Table S4.1b Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

B on plan IPPC Site Plan 2009 Emergency Stack from cupola

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1c Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

C on plan IPPC Site Plan 2009 Mainline Forming Stack

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Particulate Matter	50 mg/Nm^3		6monthly in triplicate	BS EN 10155 and BS EN 13284-1
Volatile Organic Compounds as C	50 mg/Nm^3		6monthly in triplicate	BS EN 12619: 1999
Ammonia	50 mg/Nm^3		6monthly in triplicate	BS EN 14791
Formaldehyde	10 mg/Nm^3		6monthly in triplicate	US EPA Method 316
Phenol	10 mg/Nm^3		6monthly in triplicate	BS EN 13649
Amines	20 mg/Nm^3		6monthly in triplicate	BS EN 13649

Table S4.1d Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

D on plan IPPC Site Plan 2009 Binder Fume Plant Extraction

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Particulate Matter	No limit set		Annually in triplicate	BS ISO 10155 and BS EN 13284-1
Volatile Organic Carbon as C	No limit set		Annually in triplicate	BS EN 12619: 1999
Ammonia	No limit set		Annually in triplicate	BS EN 14791
Formaldehyde	No limit set		Annually in triplicate	US EPA Method 316
Phenol	No limit set		Annually in triplicate	BS EN 13649
Amines	No limit set		Annually in triplicate	BS EN 13649

Table S4.1f Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

F on plan IPPC Site Plan 2009 Main line curing oven

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Particulate Matter	10 mg/Nm^3		Annually in triplicate	BS ISO 10155 and BS EN 13284-1
Volatile Organic Compounds as C	10 mg/Nm^3		Annually in triplicate	BS EN 12619: 1999
Ammonia	10 mg/Nm^3		Annually in triplicate	BS EN 14791
Formaldehyde	5 mg/Nm^3		Annually in triplicate	US EPA Method 316
Phenol	5 mg/Nm^3		Annually in triplicate	BS EN 13649
Amines	5 mg/Nm^3		Annually in triplicate	BS EN 13649
Nitrous oxides	No limit set		Annually in triplicate	VDI 2469-1
Nitrogen Dioxide	No limit set		Annually in triplicate	BS EN 14792

Table S4.1g Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

G on plan IPPC Site Plan 2009 Main line Cooling Zone Stack

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Particulate Matter	10 mg/Nm^3		Annually in triplicate	BS ISO 10155 and BS EN 13284-1
Volatile Organic Compounds as C	15 mg/Nm^3		Annually in triplicate	BS EN 12619: 1999
Ammonia	10 mg/Nm^3		Annually in triplicate	BS EN 14791
Formaldehyde	5 mg/Nm^3		Annually in triplicate	US EPA Method 316
Phenol	5 mg/Nm^3		Annually in triplicate	BS EN 13649
Amines	5 mg/Nm^3		Annually in triplicate	BS EN 13649

Table S4.1h Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

H on plan IPPC Site Plan 2009 Tenkay Filter

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1m Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

M on plan IPPC Site Plan 2009 Edge Trim return and recycle extracted air

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1p Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

P1 to P7 on plan IPPC Site Plan 2009 filtered release points on bulk silos

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1q Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

Q on plan 2008 EUETS Carbon Emission Points Plan Emergency Diesel Powered Generator

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1r Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

R on plan 2008 EUETS Carbon Emission Points Plan Kerosene Burner

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1s Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

S on plan 2008 EUETS Carbon Emission Points Plan Factory Heater

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1t Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

T on plan 2008 EUETS Carbon Emission Points Plan Domestic boiler

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1u Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

U on plan 2008 EUETS Carbon Emission Points Plan Heat Shrink Stack

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Table S4.1v Point source emissions to air – emission limits and monitoring requirements

Emission Point ref. & location:

V on plan 2008 EUETS Carbon Emission Points Plan Edge Shrink Burners

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
No parameters set	No limits set	N/A	Not required	N/A

Notes to Table S4.1

- Group 1 metals (and their compounds): arsenic, cobalt, nickel, selenium, chromium VI
- Group 2 metals (and their compounds): antimony, lead, chromium III, copper, manganese, vanadium, tin
- When continuous monitoring is carried out (except carbon monoxide) not more than one half hour period during any 24 hour period commencing at midnight shall exceed the limit by more than 50%
- To obtain a valid daily average value no more than five half hourly average values in any day shall be discarded due to malfunction or maintenance of the continuous measurement system. No more than ten daily average values per year shall be discarded due to malfunction and maintenance of the continuous measurement system.
- With regard to the calibration of the continuous emissions monitors, at the appropriate value, the values of the 95% confidence intervals of a single measured result shall not exceed the following percentages of the emission limit values:

Carbon Monoxide	20%
Sulphur Dioxide	20%
Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	20%
Total dust	30%

- CEMs which meet the MCERTS requirements will also meet the requirements of BS EN 15267-3
- BS EN 14791 is a wet chemistry method for measuring SO_2. Although a different impinger solution is used in BS EN 14791, the principles of this standard may be adapted for measuring ammonia. US EPA M26 and 26A may still be used for MCerts accredited monitoring until the end of June 2009. After this date BS EN 14791 must be used.

Table S4.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
L1 on plan IPPC Site Plan 2009	pH	Surface drainage from raw materials handling area in south of site, via interceptor	No limit set		Every 6 months	Sampling to be carried out during a period of rainfall and only when the outlet is open to discharge to controlled water
	COD		No limit set			
	Total suspended solids		No limit set			
	Oil and Grease		No visible			
L2 on plan IPPC Site Plan 2009	pH	Surface drainage from road and yard at eastern end of site, via interceptor	No limit set		Every 6 months	Sampling to be carried out during a period of rainfall and only when the outlet is open to discharge to controlled water
	COD		No limit set			
	Total suspended solids		No limit set			
	Oil and Grease		No visible			
L3 on plan IPPC site plan 2009	pH	Roof drainage from main ADA building	No limit set		Every 6 months	Sampling to be carried out during a period of rainfall and only when the outlet is open to discharge to controlled water
	COD		No limit set			
	Total suspended solids		No limit set			
	Oil and Grease		No visible			
L4 on plan IPPC site plan 2009	pH	Roof and surface drainage from western end of site, via trapped gulleys	No limit set		Every 6 months	Sampling to be carried out during a period of rainfall
	COD		No limit set			
	Total suspended solids		No limit set			
	Oil and Grease		No visible			
L5 on plan IPPC site plan 2009	pH	Roof and surface drainage from mid section of site, via gulleys and interceptors	No limit set		Every 6 months	Sampling to be carried out during a period of rainfall
	COD		No limit set			
	Total suspended solids		No limit set			
	Oil and Grease		No visible			

L6 on plan IPPC site plan 2009	pH	Yard area on southern side of site	No limit set	Every 6 months	Sampling to be carried out during a period of rainfall
	COD		No limit set		
	Total suspended solids		No limit set		
	Oil and Grease		No visible		

Table S4.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
S1 on IPPC site plan 2009	Phenol Total phenolic Formaldehyde Fluoride Ammonia pH COD Suspended Solids Oil and Grease	Effluent recirculating system and base exchange unit	No limit set		During each batch of effluent being discharged to sewer	As per response to improvement programme item 1
	flow		2.5m^3 / hr		Contiuous whilst discharging	

Table S4.4 Ambient air monitoring requirements

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Installation boundary point at the raw materials and handling area	Particulate Matter / Dust	Fortnightly	As per response to improvement condition 1	To include directional monitoring of weight of the dust collected, obscuration and apparent deposition rate
Installation Site Boundary	Phenol, formaldehyde, and ammonia	6 monthly	As per response to improvement condition 1	Upwind and downwind concentrations

Schedule 5 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S5.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air	A, D, F, G,	Every 12 months	01/01/09
Parameters as required by condition 3.5.1.	C	Every 6 months	
	A	Every 3 months	
Emissions to water	L1, L2, L3, L4, L5, L6	Every 6 months	01/01/09
Parameters as required by condition 3.5.1	S1	Every 3 months	
Ambient air monitoring	Upwind / downwind boundary	Every 6 months	01/01/09
Parameters as required by condition 3.5.1	Boundary dust	Every 3 months	

Table S5.2: Annual production/treatment

Parameter	Units
Stone wool	tonnes

Table S5.3 Performance parameters

Parameter	Frequency of assessment	Units
Emergency stack operating times	Annually	Total hours operating with by-pass stack open and percentage of operating hours per month
Oxides of Sulphur (as SO_2)	Annually	Kg per tonne of melt per month and tonnes
Oxides of Nitrogen (as NO_2)	Annually	Kg per tonne of melt per month and tonnes
VOC (as C)	Annually	Kg per tonne of melt per month and tonnes
Particulate	Annually	Kg per tonne of melt per month and tonnes
Carbon Dioxide	Annually	Kg per tonne of melt per month and tonnes
Carbon Monoxide	Annually	Kg per tonne of melt per month and tonnes
Phenol	Annually	Kg per tonne of melt per month and tonnes
Fluoride (as HF)	Annually	Kg per tonne of melt per month and tonnes
Chloride (as HCl)	Annually	Kg per tonne of melt per month and tonnes
Amines	Annually	Kg per tonne of melt per month and tonnes
Hydrogen Sulphide	Annually	Kg per tonne of melt per month and tonnes
Groups 1 & 2 Metals	Annually	Kg per tonne of melt per month and tonnes
Group 1 metals	Annually	Kg per tonne of melt per month and tonnes

Table S5.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Form air 1a to h or other form as agreed in writing by the Agency	01/12/08
Water and Land	Form water 1 or other form as agreed in writing by the Agency	01/12/08
Sewer	Form sewer 1 or other form as agreed in writing by the Agency	01/12/08
Water usage	Form water usage1a and b or other form as agreed in writing by the Agency	01/12/08
Energy usage	Form energy 1a and b or other form as agreed in writing by the Agency	01/12/08
Other performance indicators	Form performance 1a to d or other form as agreed in writing by the Agency	01/12/08

Schedule 6 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Knauf Insulation Ltd

Schedule 7 - Interpretation

"*accident*" means an accident that may result in pollution.

"*annually*" means once every calendar year.

"*application*" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by the Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"background concentration" means such concentration of that substance as is present in:

- for emissions to surface water, the surface water quality up-gradient of the site; or
- for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge.

"dioxins" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzo-p-furans.

For the determination of the toxic equivalence factor (TEQ) value stated as a release limit the mass concentrations of the following dioxins and furans have to be multiplied with their equivalence factors before summing.

Equivalence factor:	
2,3,7,8 Tetrachlordibenzodioxin (TCDD)	1
1,2,3,7,8 Pentachlordibenzodioxin (PeCDD)	0.5
1,2,3,4,7,8 Hexachlordibenzodioxin (HxCDD)	0.1
1,2,3,7,8,9 Hexachlordibenzodioxin (HxCDD)	0.1
1,2,3,6,7,8 Hexachlordibenzodioxin (HxCDD)	0.1
1,2,3,4,6,7,8 Heptachlordibenzodioxin (HpCDD)	0.01
Octachlordibenzodioxin (OCDD)	0.001
2,3,7,8 Tetrachlorodibenzofuran (TCDF)	0.1
2,3,4,7,8 Pentachlorodibenzofuran (PeCDF)	0.5
1,2,3,7,8 Pentachlorodibenzofuran (PeCDF)	0.05
1,2,3,4,7,8 Hexachlordibenzofuran (HxCDF)	0.1
1,2,3,7,8,9 Hexachlordibenzofuran (HxCDF)	0.1
1,2,3,6,7,8 Hexachlordibenzofuran (HxCDF)	0.1
2,3,4,6,7,8 Hexachlordibenzofuran (HxCDF)	0.1
1,2,3,4,6,7,8 Heptachlordibenzofuran (HpCDF)	0.01
1,2,3,4,7,8,9 Heptachlordibenzofuran (HpCDF)	0.01
Octachlordibenzofuran (OCDF)	0.001

"emissions to land", includes emissions to groundwater.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2007 No.3538 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"fugitive emission" means an emission to air, water or land from the activities which is not controlled by an emission or background concentration limit.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"triplicate" means three separate replicates of a sample, taken one after the other.

"year" means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

(a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

(b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content

END OF PERMIT