

Natural Resources Wales permitting decisions

Knauf Insulation Limited – Decision Document

Minor Technical Variation

The application number is: PAN-003435

The Applicant/Operator is: Knauf Insulation Limited

The Installation is located at: Knauf Queensferry Mineral Fibre Works, Chemistry Lane, Queensferry, Deeside, Flintshire, CH5 2DA

We have decided to issue the variation for the installation operated by Knauf Insulation Limited.

We consider that in reaching our decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals

Structure of this document

- Table of contents
- Key issues
- Annex 1 – Improvement Conditions

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Key issues of the decision

1. Our decision

We have decided to issue the variation to the Applicant. This will allow them to operate the Installation, subject to the conditions in the Permit.

We consider that, in reaching this decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This Application is to operate an Installation which is subject principally to the Environmental Permitting Regulations 2016 ('EPR') and is subject to the requirements of the Industrial Emissions Directive ('IED').

The Permit contains many conditions taken from our Environmental Permit template conditions, including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the EPR and other relevant legislation. This document does not therefore include an explanation for these template conditions. Where they are included in the Permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the template condition appropriate.

2. How we reached our decision

2.1 Receipt of Application

The Application was received on the 3rd October 2018 and accepted as duly made on the 22nd October 2018. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

3. The Legal Framework

All applicable European directives have been considered in the determination of the application.

NRW is satisfied that this decision is consistent with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

4. The Regulated Facility

4.1 Description of the Installation and related issues

4.1.1 The permitted activities

Regulation 8 EPR defines the categories of 'regulated facility' and provides that a regulated facility of some categories may be carried on as part of the operation of a regulated facility of another category.

For the purpose of regulation 8 EPR, NRW has concluded that the regulated facility is an 'Installation'.

The Installation is subject to the EPR because it carries out an activity listed in Part 1 of Schedule 1 to the EPR:

- Section 3.4 Part A(1)(a) – Melting mineral substances in plant with a melting capacity of more than 20 tonnes per day

4.1.2 The Site

Knauf Queensferry is a currently permitted Installation located in Deeside. The main installation is operated by Knauf Insulation Limited.

4.1.3 What the Installation does

Knauf Queensferry manufactures 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 Installation manufactures mineral wool (stone wool) from molten stone produced by melting blast furnace slag and natural stone together in a blast furnace. Heat for melting the stone is produced by burning coke in a hot blast furnace with oxygen enriched air.

Molten stone flows from the furnace via water-cooled troughs onto the forming spinner. This spinner has wheels which rotate at high speed. Stone melt is spun into stone wool fibre which is then projected by high pressure air towards a collection chamber where binder is applied. The furnace waste gases are filtered to remove dust, then passed through a thermal oxidiser.

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. Waste gases from this process 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. After this, 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 to required size and passed into a packaging area where it is packaged and stored awaiting dispatch.

4.1.4 Key Issues in the Determination

The key issues arising during this determination are; emissions to air.

The Best Available Technique (BAT) conclusions for the manufacture of glass, state that to reduce Hydrogen Chloride (HCl) emissions from the site, one or more techniques may be employed, these are limiting the chlorine content in the raw materials or secondary abatement of the emissions to air. The Operator selects the raw materials (stone, slag & coke) to meet the final production specification required by the end user of the product. The HCl emissions from the process are directly related to the chlorine content of the raw materials. The Operator has carried out several trials using various raw materials within the production specification to try and reduce chlorine content. This has not been possible due to the lack of a reliable and repeatable reduction in HCl emissions. Therefore, the Operator has proposed to reduce the HCl emissions by secondary abatement.

The Operator has completed 3 tests and proving trials over a yearlong period to determine the most effective abatement option for HCl emissions to air. The results demonstrate that the injection of dry hydrated lime into the exhaust gas stream reduces the levels of HCl to below the Emission Limit Value (ELV) set in the current Permit. The techniques of dry and semi-dry scrubbing with an alkaline material with associated filtration is considered to be BAT for reducing HCl emissions in melting furnaces within this sector. The Operator will use 'dry scrubbing' with an associated bag filter.

The dosing equipment will be stored within a building, therefore minimising impact to the environment, a 1 tonne bag of hydrated lime will be fitted to the dosing equipment whilst another 1 tonne bag will be stored in a secure, indoor location.

As the risk of release/pollution from the lime is low there has been no change to the existing site condition report.

Dry hydrated lime will be injected into the exhaust stream prior to the bag filter, the lime will be dosed at a rate which isn't expected to exceed 20kg/hr, the actual dose rates of the lime will be determined during the commissioning phase and reported to NRW. The lime dosing equipment will consist of an;

- IBC storage vessel and discharge hopper, this is fitted with level sensors to alert the Operator when the levels of lime are low;
- a metering feeder to allow the Operator to accurately control the amount of lime being dosed, this will also be fitted with sensors that will detect any faults and alert the Operator,
- a pneumatic conveying system which will pneumatically convey the hydrated lime into the exhaust gas using positive pressure via a single line. This system is also fitted with sensors that alert the Operator to any faults and shut down the system, and;
- an air filter, fitted to the hopper to remove any air that escapes from the valves. This filter will be in operation whenever the valves are operated. The filter will be periodically cleaned by blowing clean air in the reverse direction, this will be controlled by a controller mounted to the filter manifold.

The hydrated lime will be provided and stored in 1 tonne IBC bags, with a total storage capacity on site of 2 tonnes. The annual usage is not expected to exceed 140 tonnes.

Due to the injection of the lime there will be an increase in dust collected from cupola containing lime wastes, this is expected to be approximately 50kg of lime waste per hour, this is in addition to the current 30kg per hour of existing waste. The Operator will modify the existing waste collection system to accommodate this additional waste. This includes a new screw feed conveyor from the existing conveyor and additional bulk storage bag collection points. The waste will then be removed from site in-line with existing procedures, the current waste contractor has confirmed they are able to receive the additional waste.

4.2 Operation of the Installation – general issues

4.2.1 Administrative Issues

The Applicant is the sole operator of the Installation. We are satisfied that the Applicant is the person who will have control over the operation of the Installation after the granting of the Permit, and that the Applicant will be able to operate the Installation to comply with the conditions included in the environmental Permit.

We are satisfied that the Applicant's submitted Operator Performance Risk Appraisal ('OPRA') profile is accurate. The OPRA score will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. OPRA is Natural Resources Wales method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required.

4.2.2 Relevant Convictions

NRW's COLINS Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in RGN 5 on Operator Competence.

4.2.3 Financial Provision

There is no known reason to consider that the operator will not be financially able to comply with the permit. The decision was taken in accordance with RGN 5 on Operator Competence.

4.2.4 Management

The applicant has an EMS which is certified to ISO14001. The addition of the dosing equipment will be incorporated into the sites existing management systems and maintenance programme, including any additional staff training requirements.

We are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Applicant to ensure compliance with all the Permit conditions.

4.2.5 Accident Management

The site currently operates an accident management plan (emergency procedures). The Operator has carried out an additional risk assessment associated with the changes. The outcome shows a low risk associated with the changes. The sites existing accident management plan will be updated to reflect the changes made by this variation.

To ensure that the management system proposed by the applicant sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents.

4.2.6 Operating Techniques

We have specified that the Installation must be operated in accordance with the techniques set out in table S1.2 of the Permit. The details referred to in that table describe the techniques that will be used for the operation of the Installation that have been assessed by Natural Resources Wales as BAT; they form part of the Permit through condition 2.3.1 and Table S1.2 in the Permit schedules.

5. Minimising the Installation's environmental impact

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, water, sewer and discharges to ground or groundwater, global warming potential and generation of waste. All these factors are discussed in this and other sections of this document.

For an installation of this kind, the principal emissions are: emissions to air.

5.1 Emissions to Air

There are no changes to the current emission profile from the site as a result of this variation. This variation adds 'hydrated lime addition' to provide additional abatement for emissions to air and allows the site to comply with the current ELV for HCl. As there are no changes made here, then no additional assessment is required.

5.2 Assessment of impact to surface and ground water

As part of this variation there are no new or increased discharges to surface water. The current levels set in the Permit remain.

5.3 Emissions to sewer

As part of this variation there are no new or increased discharges to sewer. The current levels set in the Permit remain.

5.4 Fugitive Emissions

5.4.1 Air

There is a small potential for fugitive emissions to occur when handling and processing the hydrated lime as it is in powder form.

The Operator has operational experience of dealing with this type of dosing equipment at other sites and results from the trials that have taken place. The equipment will be stored inside a building where most of the handling will take place and there will be filters present on the lime handling equipment. Taking all these factors into consideration, the risk of fugitive emissions to air are low.

5.4.2 Water

There is no risk of fugitive emissions to water, as the hydrated lime will be in powder form and there will be no washing down of any spillages with water. The material will be handled and stored on a concrete hardstanding within an existing building.

5.5 Noise

The lime dosing equipment will be located within an existing building, the equipment is also not a significant source of noise, therefore there will be no change to the existing noise levels/profile from the site.

5.6 Odour

There will be no additional sources of odour as part of this variation.

6. Application of the Best Available Techniques

6.1 BAT Assessment

In this section, we explain how we have determined whether the Applicant's proposals are the Best Available Techniques (BAT) for this Installation. The revised Best Available Techniques (BAT) Reference Document (BRef) for the manufacture of Glass was published on the 8th March 2012 in the Official Journal of the European Union.

The Applicant therefore needs to show that the Installation is BAT and that any associated BAT-AELs are complied with. We agree that the proposals outlined in this variation represent BAT for the Installation.

6.2 Monitoring

Following on from the addition of the hydrated lime abatement, the Operator will carry out quarterly monitoring of HCl emissions from Stack A using an MCERTS accredited monitoring company beginning in Quarter 2 of 2019 for a period of 12 months to demonstrate compliance with the ELV for HCl.

Once this 12-month monitoring programme has been completed and if compliance can be demonstrated, the Operator has proposed to request permission from NRW to switch to annual monitoring of HCl.

There are no other changes to the monitoring on-site, this will continue in-line with the current Permit.

6.3 Reporting

As above, the emissions from Stack A shall be reported to NRW to demonstrate compliance, all other reporting in the Permit is unchanged.

6.4 Energy

There will be a minor increase in energy consumption associated with the use of motors within the lime dosing equipment. This will generate an additional 23 tonnes of CO₂ per year, in comparison to the 31,443 tonnes of CO₂ generated by the Installation in 2017, this rise is considered to be negligible.

ANNEX 1. Improvement Conditions

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
IC38	<p>If storing Priority Hazardous Substances on site, the Operator must carry out the following assessments with reference to the Environment Agency's guidance document H1 Annex D1 'Assessment of hazardous pollutants within surface water discharges',</p> <ul style="list-style-type: none"> Phase 1 Part A screening tests for mercury, cadmium, nickel, lead, benzene, polyaromatic hydrocarbons and any other relevant substances. Phase 1 Part B screening tests for mercury, cadmium, polyaromatic hydrocarbons and any other relevant priority hazardous substances. For any substance which is not screened out by the Phase 1 Part A or Part B screening tests the Operator will also need to carry out Phase 2 modelling, as described in H1 Annex D1. <p>The Operator must provide Natural Resources Wales with the results of the emissions monitoring, the results from the screening tests and the results from any Phase 2 modelling. The Operator may use the Environment Agency's H1 electronic screening tool to present the emissions data and to carry out the Phase 1 screening tests.</p> <p>Note: With regard to the Phase 1 Part A screening - a full list of relevant substances is provided in Tables 1 and 2 of Appendix 1 of the Environment Agency's H1 Annex D1 guidance. The Operator must review the list and carry out the screening for any substances, in addition to those specified in the notice that may be present in the installations discharges to surface water. With regard to the Phase 1 Part B screening for priority hazardous pollutants, Table 1 in section 2.3.2 of H1 Annex D1 provides a full list of relevant priority hazardous substances and their associated annual significant loads.</p> <p>The Improvement condition requires an assessment for mercury, cadmium, nickel, lead, benzene, PAH and <u>any other</u> relevant priority hazardous substances discharged to surface water and sewer. 'Any other' shall be determined based on an assessment of substances potentially present at the installation that may enter surface water drainage including diffuse runoff from process / yard areas and point source emissions. For example, substances contained within raw materials, fuels, process wastes.</p> <p>A spreadsheet containing list of all priority hazardous substances and the associated Annual Average Environmental Quality Standards (AA-EQS) and Maximum Allowable Concentration Environmental Quality Standards (MAC-EQS) can be found at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/601586/Freshwater_PHS_PH_and_other_pollutants.csv</p> <p>Collect representative samples of the discharge and analyse for the required priority hazardous substances as determined in point 1 above. Samples should be sent to a UKAS accredited laboratory.</p> <ol style="list-style-type: none"> Submit a report your findings to NRW including the rationale for the substances assessed/not assessed, results from your H1 Assessment screening & sample analysis results. 	Complete???
IC 39	<p>The operator shall take measures to reduce HCl emissions by either the selection of raw materials with a lower chlorine content or to introduce improved abatement. A report shall be sent to NRW for approval.</p>	Complete

