Permitting Decisions - Variation

We have decided to grant the variation for Kemira Chemicals (UK) Limited operated by Kemira Chemicals (UK) Limited.

The variation number is EPR/TP3135PX/V005.

The variation was issued on 10/06/2025.

Kemira Chemicals (UK) Limited operates an installation at their Goole site where they are manufacturing inorganic salts under Schedule 1 Section 4.2 Part A(1)(a)(iv) of the Environmental Permitting Regulations 2016.

This variation is to facilitate an increase in ferric sulphate production. This involves the addition of new process equipment such as a 58m^3 dissolver vessel, condenser, 30m^3 adjustment tank, refurbished filter press, 100m^3 blowdown tank, associated pressure relief system to serve all 5 reactors, magnetite storage and transportation/distribution system. The application also includes an extension of installation boundary for storage of magnetite. Further, there will be 5 new emission points to air.

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

Purpose of this document

This decision document provides a record of the decision-making process. It

- highlights key issues in the determination
- summarises the decision making process in the decision considerations section to show how the main relevant factors have been taken into account
- shows how we have considered the consultation responses

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

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Key issues of the decision

Emissions to Air

The existing emission point on site was a combined emission source of the existing process, this is being fully replaced by five new emission points.

The applicant has submitted an air dispersion modelling report titled 'Permit Air Quality Impact Assessment' to support the risk assessment in relation to addition of 5 point source emissions to air. The pollutants of concern are sulphur dioxide (SO_2) and particulate matter (PM). The applicant has concluded that emissions from the installations will be insignificant on human receptors for both pollutants.

We have audited the applicant's modelling report, which is detailed below.

The applicant's emissions concentrations were very low therefore we firstly assessed these emissions using the H1 tool for emissions to air as this is highly conservative.

Sulphur dioxide (SO_2)

We ran the H1 tool for human as well as ecological receptors. SO_2 has a short term Environmental Assessment Level (EAL) of 266µg/m^3 over an averaging time of 15minutes mean and an annual mean EAL of 10µg/m^3 .

To screen out a process contribution (PC), the short term PC must be less than 10% of EAL and long term PC must be less than 1% of EAL.

The results of the H1 tool demonstrated that the ST-PC is 1.21% of EAL and the LT PC is 0.91% of EAL. Therefore as the emissions of SO_2 screened out at Test1, these emissions are considered to be insignificant at both human health and ecological receptors.

Particulate Matter

As above, we ran the screening tool for $PM_{2.5}$ and PM_{10} for both long term and short term. The emissions failed the first stage, and therefore we carried out the second stage of screening (Test 2) to determine the predicted environmental concentration (PEC). In order to screen out as not significant at the second stage of screening, the following criteria must be met:

- the short term PC should be less than 20% of the short term Environmental standards minus twice the long term background concentration

- the long term PEC should be less than 70% of the long term environmental standards.

Here, the background concentration of 10.4 µg/m^3 and 17.4 µg/m^3 was used for $PM_{2.5}$ and PM_{10} respectively. $PM_{2.5}$ has a long term EAL of 20 µg/m^3, PM_{10} has a long term EAL of 40 µg/m^3 and short term EAL of 50 µg/m^3.

The results of the H1 tool demonstrated that $PM_{2.5}$ and PM_{10} screened out as not significant for long term emissions however PM_{10} failed to screen out for short term emissions.

Therefore, we carried out internal checks of the dispersion modelling files, and assessed the risks at discrete sensitive receptor locations. The results of the audit confirmed that the short term PCs of PM_{10} have low environmental risk and they screen out as not significant at these sensitive receptor locations.

In conclusion, we can confirm that the emissions of SO_2 and PM will not be significant. Furthermore, we have added an improvement condition in the permit to verify the modelled data and confirm the conclusions of the risk assessment.

Best Available Techniques (BAT)

The applicant has provided a BAT assessment against the technical guidance The Inorganic Chemicals Sector (EPR 4.03). They have also provided a BAT assessment against Common Waste Gas Management and Treatment Systems in the Chemical Sector (WGC BAT EU Conclusions) in order to be prepared for when the WGC UK BAT Conclusions are published.

The applicant has confirmed that there are about three main sources of emissions to air i.e. from dissolver tanks, adjustment tanks and from depressurization process vents. In dissolvers, abatement is applied by passing the exhaust vapours through spray ball scrubbing and condenser and the condensate is returned to process while the waste gas is emitted through fan extraction. The adjustment tank has a very low temperature and therefore no abatement is used and emissions are directly vented to atmosphere. The depressurization process vents pass the waste gas through water, the bubbling removes any pollutant and the remaining gas stream is vented out.

There are no emissions to water, the water which is used for flushing of the pipes is reused within the batching process. During shutdown, complete cleaning is carried out using diluted sulphuric acid and mechanical pipe spinners to clean off the process water lines. All liquid from this cleaning is reused in the process completely. The process water tank is cleaned and all solids are removed by an external waste company.

The raw material magnetite is transferred through an encapsulated belt conveyor, thus preventing any fugitive emissions. Further, HAZOP study has been undertaken. All other indicative BAT have been addressed by the applicant.

We are satisfied that the applicant's techniques are BAT.

Storage and Containment

The applicant has confirmed that the bunds will have capacity larger than both of the following:

- 110% of the largest tank the bund is protecting
- 25% of the combined volume of all the tanks the bund is protecting.

The existing process vessels are bunded, however with the addition of new equipment, the applicant has proposed to increase the bund size in order to meet the above criteria. The dimensions and calculations have been provided, we have checked this and are satisfied that the 100% and 25% criteria will be met.

In addition, the applicant has confirmed that the bunds would be

- waterproof as it is resin coated to protect from corrosive chemicals,
- fitted with pneumatic pumps and the pits cleaned regularly to prevent contamination or blockage in any circumstances
- regularly checked for cracks
- undergoes periodic hydraulic checks
- do not have any outlets like drains or taps
- drain to an isolated pump
- emptied twice daily to restore to full capacity
- Further all tanker loading points are within bunds.

We are satisfied with the secondary containment provided by the applicant.

Flood risk assessment (FRA)

The site resides within flood zone 3. The applicant has submitted an FRA detailing the changes in sea level and climate, previous flood level data, sources of flood risk and location of existing flood defences. The conclusion of the FRA is that the proposed development is appropriate for the site within the regulatory framework.

Further, based on the information provided within the application, we know that the additional land being added to the installation boundary will be for magnetite storage alone. Magnetite is insoluble in water at normal temperature. Considering that magnetite (i.e. iron oxide (Fe_3O_4)) is heavier (higher density) in nature compared to water, it is likely to settle than be carried away in the flood water.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- Local Authority – Environmental Protection Department
- Director of PH/UKHSA
- Health and Safety Executive

The comments and our responses are summarised in the consultation responses section.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 ‘Understanding the meaning of regulated facility’, Appendix 2 of RGN2 ‘Defining the scope of the installation’, Appendix 1 of RGN 2 ‘Interpretation of Schedule 1’.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

The plan is included in the permit.

Site condition report

The applicant has submitted a site-condition report (SCR) which captures the changes due to extension of the site boundary. We have consulted on the SCR internally. The applicant has identified the source-pathway-receptor of this application. Based on the information provided in the SCR, we can confirm that the pollution to land and water is low risk as the site.

We are satisfied with the operator's site condition report.

The decision was taken in accordance with our guidance on site condition reports.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England.

The decision was taken in accordance with our guidance.

Environmental risk

The operator has provided a site specific risk assessment which addresses the environmental aspects, in the form of source-pathway-receptor model, states the existing control measures and plans for additional controls. Whilst the production capacity is increasing, there are no new raw materials / new substances being introduced, to that already used within the existing installation.

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

Operating techniques for emissions that screen out as insignificant

Emissions of Sulphur Dioxide (SO_2) and Particulate Matter (PM) have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

We consider that the emission limits included in the installation permit reflect the BAT for the sector.

National Air Pollution Control Programme

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018. By setting emission limit values in line with technical guidance we are minimising emissions to air. This will aid the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this permit.

Emission limits

Emission Limit Values (ELVs) and equivalent parameters or technical measures have been added for the following substances:

Emission point	ELVs	
	Particulate Matter(mg/m^3)	Sulphur dioxide (mg/m^3)
A1	2	0.15
A2	2	0.15
A3	2	0.15
A4	2	0.15
A5	5	6.5

The existing emission point A1 and its associated ELVs have been removed from the permit and replaced with the above 5 new emission points.

Monitoring

We have decided that monitoring should be added for the following parameters, using the methods detailed and to the frequencies specified in Table S3.1:

SO_2 – 15 minutes average – Every 6 months
PM – 1 hour average – Annual monitoring

These monitoring requirements have been included in order to ensure that the risks from emissions to air from the installation does not have significant impact on the sensitive receptors. We have also included a note stating that the minimum monitoring frequency may be reduced if the emission levels are proven to be sufficiently stable.

We made these decisions in accordance with The Inorganic Chemicals Sector (EPR 4.03) technical guidance.

Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.

Reporting

We have added reporting as specified in table S4.1 of the permit for the following parameters:

Sulphur Dioxide (SO_2)
Particulate Matter (PM)

We made these decisions in accordance with The Inorganic Chemicals Sector EPR 4.03 technical guidance.

Management system

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

"The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or

growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation."

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

Responses from organisations listed in the consultation section

Response received from UKHSA

Brief summary of issues raised: The consultee has commented that the potential concern in regard to public health is associated with the increase in the number of emission points from one to five. The recommendations are to ensure that the Environment Agency is satisfied with the meteorological data sites used in the air quality impact assessment are representative, to confirm if the applicant has addressed any increased risk of accidents from the greater storage capacity or throughput on the site, to ensure that BAT are met for all aspects of site.

Summary of actions taken: In terms of the air quality impact assessment, the details of the checks have been addressed under 'Emissions to air' of the key issues section. Further, we have investigated the meteorological site used in the modelling of the AQA, and we are satisfied that the met data used is representative. The increase in storage and production capacity is addressed under the key issues section, where provision of increased bund size, fully enclosed conveyor belt for transfer of magnetite and flooding impact on the additional land have been discussed. Further the site is located on hardstanding cover and Hazard and Operability Study (HAZOP) analysis has been completed. BAT has been discussed under the key issues of determination.

Local Authority – Environmental Protection Department – No response received

Health and Safety Executive – No response received