



Date: 24th December 2024

Antony Leakey
Pollution Prevention & Control
Natural Resources Wales
Ty Cambria
29 Newport Road
Cardiff
CF24 0TP

Dear Tony,

Reference: Improvement condition IP22V, Permit BS6149IQ

I am writing to update you on the ROCKWOOL UK development and implementation of ammonia emissions reductions to air. This will be discussed in three parts, the first covering the developments from the past year, the second a look ahead for next year and finally an update on mass balance-based ammonia emissions estimates.

1. Developments in 2024

In the last letter dated 22nd December 2023, there was a plan for 2024. Updates on each is provided below:

- ROCKWOOL UK to engage with the product certification authorities in Q1 2024 to present findings of the successful resin and binder trial run in September 2023. Once confirmation has been received an extended trial will be planned for Q2 2024 as a next step.
The product certification acceptance was ongoing in 2024. Certification received and plan to implement the change to new binder in Q2 2025.
- The jet scrubber system must be tested on a larger scale prior to rolling out at ROCKWOOL UK, date to be confirmed. Further work is also required to ensure that the generated ammonium sulphate is of a satisfactory quality to enable re-use. ROCKWOOL UK will maintain communication with the Group Research and Development team throughout 2024 to be kept up to date with any developments.
Scale required for wet scrubber abatement solution is not feasible to implement at ROCKWOOL UK and creates a significant liquid waste. ROCKWOOL UK will base the ammonia reduction strategy on reducing the ammonia content in binder.
- Alternative binder discussions are set to take place in Q1 2024 at ROCKWOOL UK prior to an on site trial, date to be confirmed.
Group have continued to trial and develop alternative binder solutions and substitutes to reduce ammonia and formaldehyde emissions. ROCKWOOL UK is creating a roadmap with a view to changing to a NAF binder in the 3 to 5 year horizon. This is likely to be based on partial substitution of ammonia in the short term and multi-binder portfolio to cover the product mix.

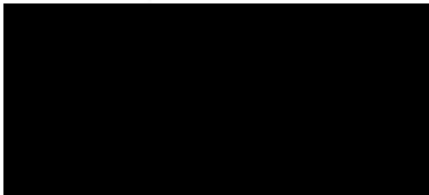
2. Plan for 2025

- ROCKWOOL UK is developing a binder roadmap with a view to moving to a NAF binder in 3 to 5 years.
- In Q2 2025, we will introduce the new Hexion resin, which is currently the Group standard for PUF (supplied from Bakelite). This was trialed in 2023 and has now received product certification. The expected ammonia reduction is approximately 12%.
- In Q3 2025, the plan is to trial a dextrose substitution for PUF of up to 15%. This will be product dependant and will also need approval from product certification authorities.

3. Mass balance-based ammonia emissions estimates

- ROCKWOOL have drafted a mass balance method and calculation based upon emissions monitoring, operating hours, waste removals and total ammoniacal nitrogen inputs to the process.
- Attached is a supplementary pdf file titled "ROCKWOOL Ammonia Mass Balance Estimate".
- This file provides a mass balance-based ammonia emissions flow diagram detailing the inputs and outputs for the process. There is also an estimation of mass balance-based ammonia emissions using data from 2023.

Yours sincerely



Environmental Manager

