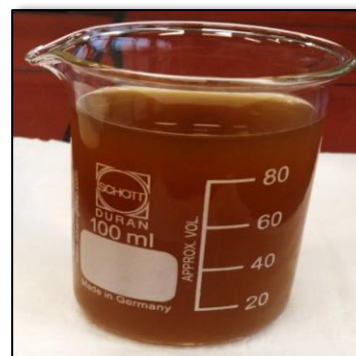


Ammonium sulphate from pig manure by on-farm scrubbing the air from the stables

Keywords: Nitrogen recovery • mineral fertiliser • scrubbing • on-farm

Key facts:

- **Product Category:** PFC 1(C)(I)(b)(i) liquid inorganic macronutrient fertiliser
- **Input material:** pig manure
- **General appearance:** liquid in light brown colour
- **Nutrient Content (N-P-K %):** 4,1% N
- **Product market status:** available on the market
- **Limitation of application:** NA
- **MS Authority permit availability:** the same as mineral fertilisers
- **Geographical area:** Belgium
- **Product price:** 10€/Ton without transport collected at the farm



Summary:

At the pig farm owned by Mr. Kris Casier, NH_3 emission from the pig manure is recovered by scrubbing with sulphuric acid. The resulted ammonium sulphate is a brown-colored liquid with a pH at 4,6-6,1, depending on the adjustment of the acid scrubber. The product usually contains 41 g/kg of N in the form of $\text{NH}_4\text{-N}$, which is supposed to be 100% directly available for plants. Due to the highly concentrated N in ammonium sulphate, compared to animal manure, lower amount is needed for agricultural application. In addition, the ammonium sulphate also contains around 100 g/L SO_4^{2-} providing 30 g/kg of sulphur (S). This allows the product to perfectly meet the nitrogen and especially sulphur requirements of crops. Therefore, this ammonium sulphate can be applied as a liquid fertiliser to substitute synthetic fertilisers.

Based on soil analysis results (N & S), the crop requirement and the soil type, etc. the correct dosage should be calculated. In order to reduce the risk of emission during application, it is recommended to apply the ammonium sulphate solution via injection or immediately incorporated into soil after surface application.

How to use:

- **Type of farming:** conventional
- **Cultivation methods:** any type of agriculture including open field or greenhouse
- **Recommended crops:** all crops, especially sulfur demanded.
- **Application doses :** 1- 1,5 ton/ha, depending on crop demand and soil fertility

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Key product features:

- liquid in light brown colour
 - Density: 1,1 kg/L
 - pH (KCl): 4,6 – 6,1
 - EC: 165 mS/cm
 - DM: 20%
 - Total N (100% NH₄-N): 34 g/kg
 - Total S: 30 g/kg (100 g/l of SO₄²⁻)
- P.s. Agronomic values may vary slightly due to the on-farm conditions and input materials.

Key product benefits:

- Recovered nitrogen fertiliser which has high potential to replace synthetic fertilisers
- High N fertiliser value compared to raw pig manure
- Providing sulphur as added value to meet the specific requirements of some crops.
- Reducing the GHG emission from pig farm
- Closing the N & S loops and contributing to a more sustainable agriculture.

Competitive position and advantages:

The ammonia sulphate is a high value N and S fertiliser recovered from on-farm scrubbing process. It helps to reduce the NH₃ emission in the farm and meanwhile can be applied to local field to reduce the fertiliser cost. Due to the 100% mineral N & S, its application is not limited to max 170 kg N/ha as stated for the raw manure.