

TECHNICAL BULLETIN



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AMMONIUM SULFATE

FERTILISER FOR ALKALINE SOILS

MATERIAL & FUNCTION

Ammonium sulfate, $[\text{NH}_4]_2[\text{SO}_4]$, is an inorganic chemical compound commonly used as a fertilizer. It contains 21% nitrogen as ammonia and 24% sulfur as sulfate.

Other names: ammonium sulfate (2:1); diammonium sulfate; sulfuric acid diammonium salt;

PROPERTIES

Ammonium sulfate is not soluble in alcohol or liquid ammonia, but is highly hygroscopic and spontaneously absorbs water from the air at relative humidity $> 81\%$.

Appearance: Fine white hygroscopic granules or crystals.

CAS number: [7783-20-2]

Molecular formula ; $(\text{NH}_4)_2\text{SO}_4$

Molar mass: 132.14 g/mol

Density: 1.77 g/cm³ @ 50 °C (122 °F)

Melting point: 235-280 °C (decomposes)

Solubility in water: 70.6g/100ml (0°C) and 103.8g/100ml (100°C)[1]

Critical relative humidity: 79.2% at 30°C

APPLICATIONS

It is used largely as an artificial fertilizer for alkaline soils. In the soil the sulfate ion is released and forms sulfuric acid, lowering the pH balance of the soil (as do other sulfate compounds such as aluminium sulfate), while contributing essential nitrogen for plant growth.

It is also used as an agricultural spray adjuvant for water soluble insecticides, herbicides, and fungicides. There it functions to bind iron and calcium cations that are present in both well water and plant cells. It is particularly effective as an adjuvant for 2,4-D (amine), glyphosate, and glufosinate herbicides.

It is also used in the preparation of other ammonium salts.

In biochemistry ammonium sulfate precipitation is a common method for purifying proteins.

SYNTHESIS

Ammonium sulfate is prepared commercially by reacting ammonia with sulfuric acid (H₂SO₄). Ammonium sulfate is prepared commercially from the ammoniacal liquor of gas-works and is purified by recrystallisation. It forms large rhombic prisms, has a somewhat saline taste and is easily soluble in water. The aqueous solution on boiling loses some ammonia and forms an acid sulfate.

DIRECTION FOR USE

Over application can result in leaf burning. Consult your local Department of Agriculture for recommended rates

CAUTION

Avoid contact with skin and eyes and avoid breathing dust.

PACKAGING

25 kg bags

IMPORTANT NOTICE TO CUSTOMER

*Since the use of this product is beyond the control of either seller or manufacturer, their only obligation shall be to replace any quantity of product which is proven defective. They cannot assume any risk or liability in excess of the purchase price of the product itself, which does not include labour or any consequential damages resulting from the use of this product. Determining the suitability of this product for any intended use shall be solely the responsibility of the user. **ALWAYS TEST FIRST.***

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