



AMMONIUM THIOSULPHATE SOLUTION

Nitrogen (N) 12% - Sulphur (S) 26%

Agricultural use

1/ INTRODUCTION

Ammonium Thiosulphate is an acceptable Sulphur Fertiliser source for many crops, for example corn, winter wheat and rape-seed. Sulphur is vital for plant development and for ensuring high yields of harvested crops. Fertilisers like Ammonium Thiosulphate are now required because soils are becoming more deficient in Sulphur due to more intensive farming methods. It is also evident that less Sulphur is returned to the soil from the atmosphere due to scrubbing of industrial stack gases.

2/ AMMONIUM THIOSULPHATE AS A SULPHUR FERTILISER

Ammonium Thiosulphate effectively alleviates Sulphur deficiency because it is transformed to plant available Sulphate upon application to the soil. In addition, Ammonium Thiosulphate adds Nitrogen to the soil.

Typical composition of Sico Ammonium Thiosulphate solution:

Nitrogen:	12%
Sulphur:	26% (or 65% Sulphur Trioxide)

Ammonium Thiosulphate is particularly effective in a liquid fertiliser that also contains Urea

Ammonium Nitrate (UAN). For example, a typical formulation:

Ammonium Thiosulphate Solution:	140 kg
Urea Ammonium Nitrate (32% solution):	742 kg
Water:	26 kg

3/ ADDED BENEFITS

Ammonium Thiosulphate has the added agronomic benefit that it can reduce Ammonia volatilisation and Nitrate leaching from soils. This reduces Nitrogen losses and improves the availability of Nitrogen Macronutrient to the crop.

By inhibiting the action of the enzyme Urease, Ammonium Thiosulphate prevents the conversion of Urea Ammonium Nitrate to Ammonia. Due to this inhibition benefit the Urea can diffuse away from the soil surface, where the hydrolysis reaction occurs, into the soil where it is available to the crop as a nutrient.

By inhibiting the nitrification reaction that occurs within the soil mass, Ammonium Thiosulphate prevents the conversion of Ammonium ions into Nitrate ions. This stops further Nitrogen losses due to leaching of the Nitrate by water.

The Urease inhibition properties of Ammonium Thiosulphate have been found to be affected by application method and soil properties (pH, carbonate content, organic carbon, and clay content).

Ammonium Thiosulphate was most effective at inhibiting urea hydrolysis under the following conditions:

- low soil moisture
- low clay content
- low organic carbon
- pH = 8
- large droplet size of liquid fertiliser when applied.

Ammonium Thiosulphate solution is a non-corrosive, non-toxic Sulphur Fertiliser that has Urease inhibition activity and is compatible with other fluid fertilisers.

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SAP INTERNATIONAL CORPORATION bvba Krekelenberg 69, B-2980 Zoersel, Belgium
Tel. +32-3-309.06.51 Fax. +32-3-309.19.31 Email : info@sico.be Website : www.sico.be

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