

Industrial Solutions

Ammonium sulfate plants

Make the best of your by-product!



thyssenkrupp



The fluidized bed granulator is the centerpiece of the production plant. It is where the liquid ammonium sulfate is turned into a solid product.

Know-how that breeds success

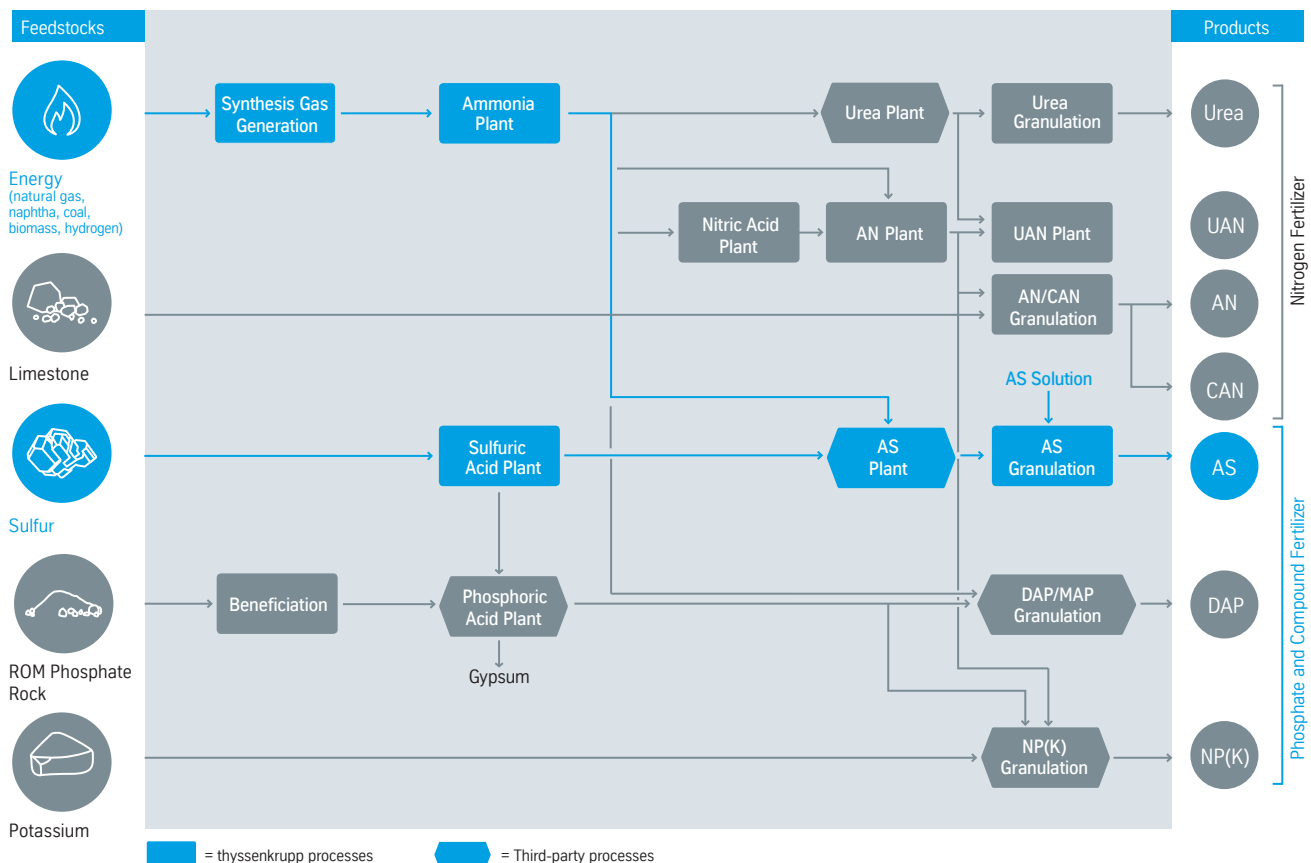
thyssenkrupp Industrial Solutions has decades of experience in supplying single-source, turnkey solutions to the fertilizer industry.

There are a number of challenges facing fertilizer producers in today's world: Stringent environmental regulations are as much a priority as the demand for increased capacities. Very often it is aging plants that need to be modernized or even completely replaced. Many companies also decide to build new multi-complex plants in which different fertilizer products can be produced.

thyssenkrupp Industrial Solutions is a competent partner in accomplishing all these tasks, supporting customers throughout the world with comprehensive concepts, ground-breaking engineering and reliable services. Moreover, we implement solutions in cooperation with equally experienced and competent partners. This means that our customers benefit from tailored project management with a central contact point.

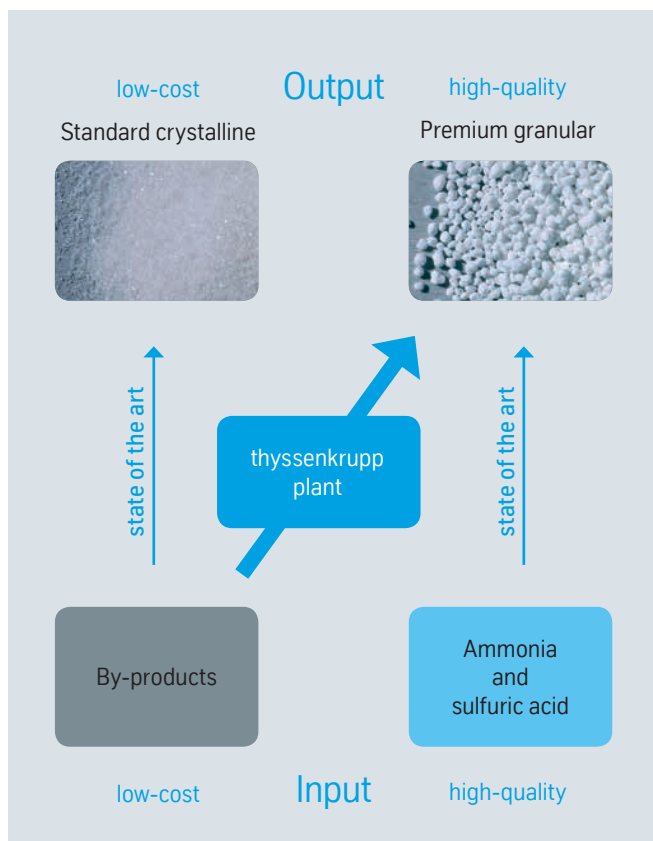
For existing plants, we offer extensive services to cover the entire life cycle of the plant. Therefore, plants are always optimally serviced and maintained so as to ensure optimum productivity at all times.

The complete process chain for the production of different fertilizers:



From an industrial by-product to a high-quality fertilizer

Plant growth depends on the nutrient content of the soil. A balanced distribution of primary and secondary nutrients as well as microorganisms ensures an optimum crop yield. Nitrogen is an essential nutrient, and so is sulfur.



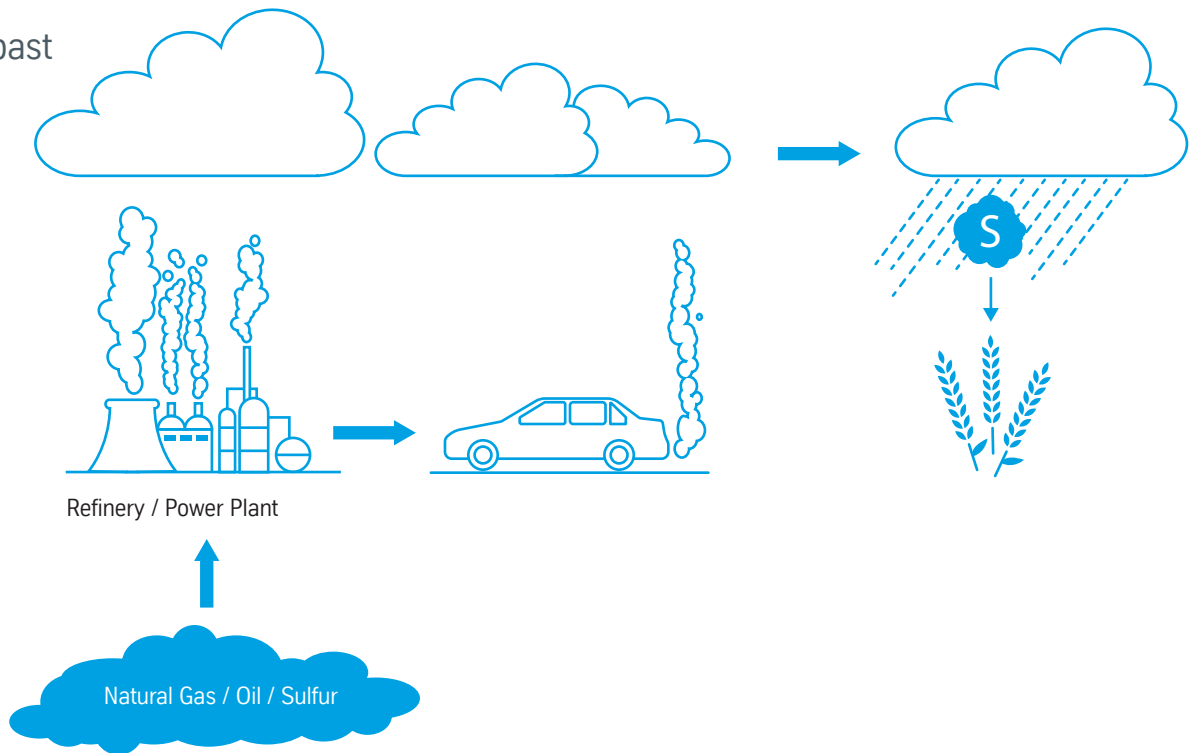
In today's world a cleaner environment, tail gas desulfurization and less acid rain now mean that especially soils that are neutral or alkaline require the controlled addition of a fertilizer additive which contains sulfur: ammonium sulfate.

Ammonium sulfate feeds sulfur and nitrogen to the soil. With its colloidal components, the fertilizer binds to clay particles in the soil, ensuring a long-term supply of nutrients. Ammonium sulfate is thus perfect for plants with a long growth period and in areas with high rainfall. In addition to acting as a long-term plant nutrient, the sulfur also promotes the transfer of micronutrients, such as manganese, iron and boron, from the soil to the plants.

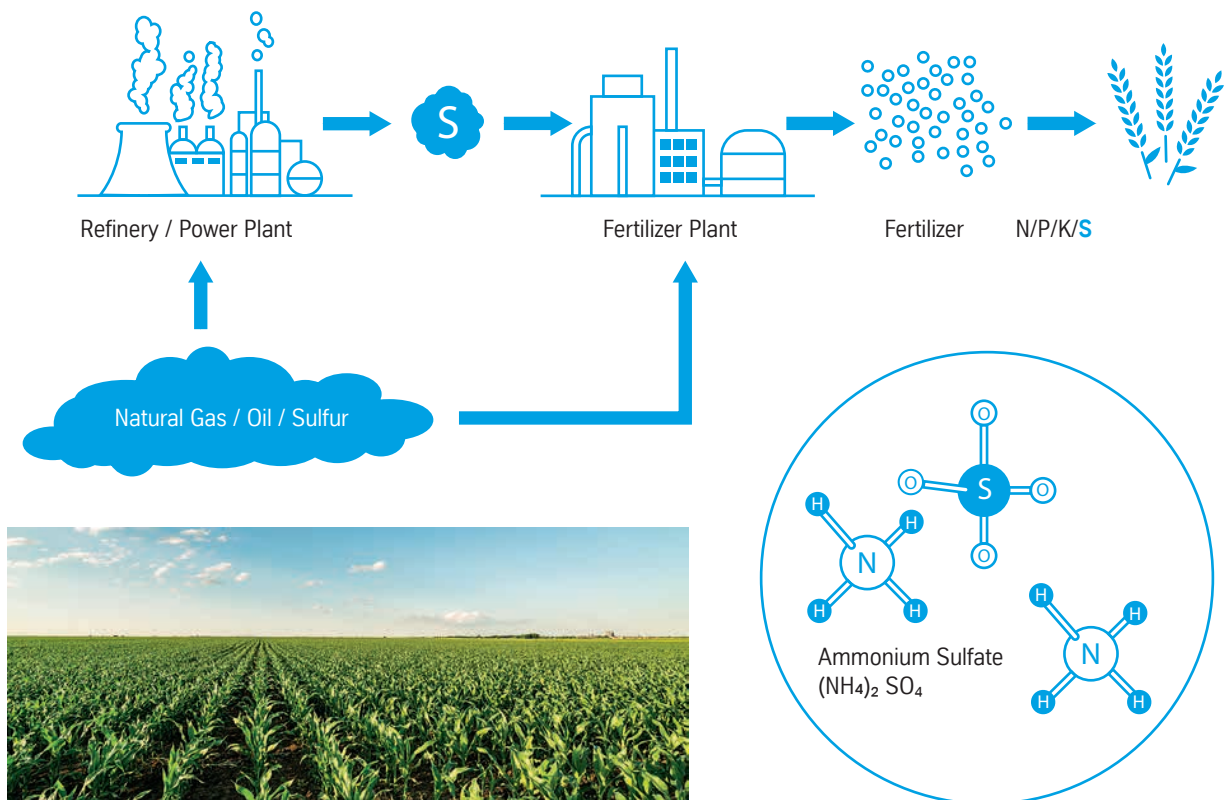
Ammonium sulfate solutions are a pertinent industrial by-product. In addition to sulfate, nitrogen and sulfur are key components of this fertilizer, which is mostly marketed in the form of crystals. In its state-of-the-art plants, thyssenkrupp has developed a process to convert ammonium sulfate solution to granules. The key advantages compared with liquid and crystalline solutions: improved storage as well as spreading and mixing properties.

Alternative granulating plants are not able to process ammonium sulfate solutions. These plants require expensive ammonia and sulfuric acid to achieve higher-priced premium product characteristics.

In the past



Today

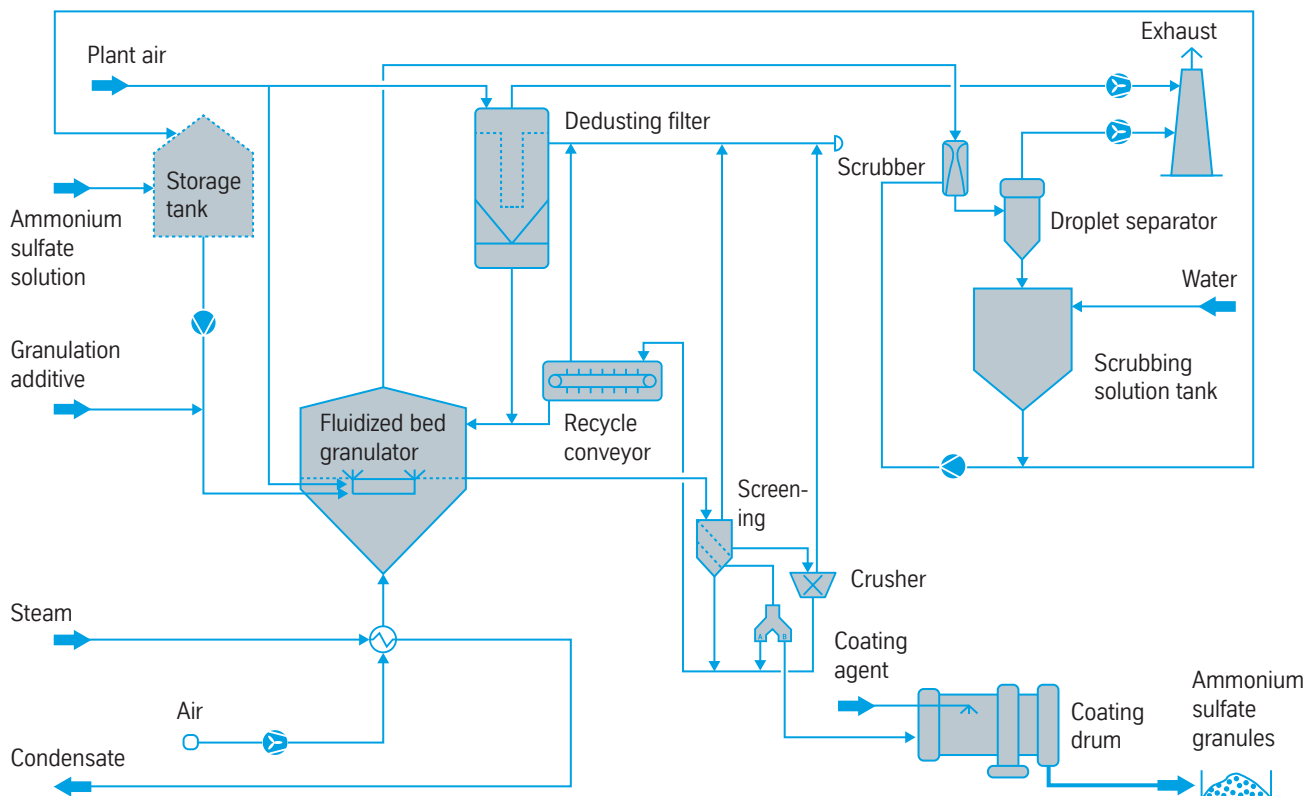


Premium fertilizer for optimum plant growth

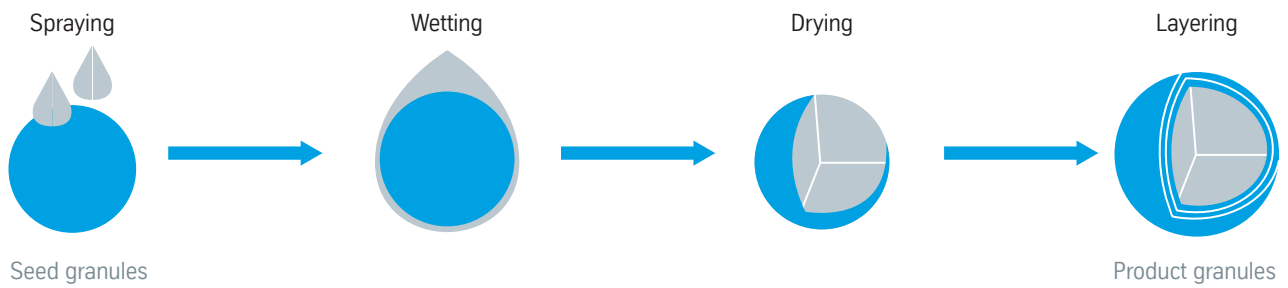
Granulated ammonium sulfate is a high-quality fertilizer which, compared with standard products, is traded in crystalline form at premium prices. Why choose the thyssenkrupp Uhde® ammonium sulfate process? The granular form as a unique selling point and the high profit margin are two very good reasons.

Another advantage: Due to the large quantities produced, crystalline ammonium sulfate is a mass-market product while granulated ammonium sulfate is produced by only a few suppliers in relatively small quantities. Demand is accordingly high – and there are sales opportunities in niche markets, too.

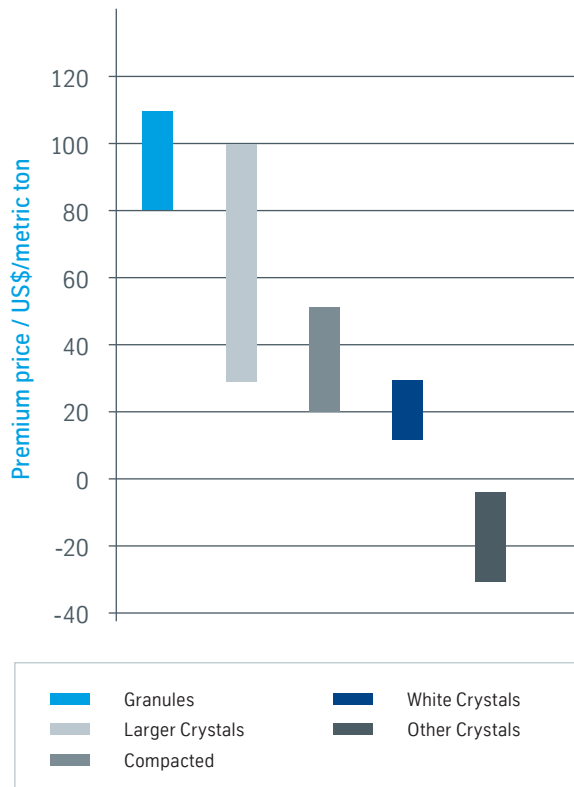
Uhde® ammonium sulfate process



Conversion of liquid ammonium sulfate solution into granules



Overview of ammonium sulfate product prices



Product Specification	
Nitrogen Content	~ 21 wt %
Sulfur Content	~ 24 wt %
Moisture	< 0,5 wt %
Hardness	~ 3.000 g
Bulk density	750-850 kg/m ³
Diameter 2-4 mm	~ 90 %

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