

Ammonium Sulfate

Fertilizer Industry



Energy costs

- In the reaction crystallization ammonia and sulfuric acid (concentrated or in a waste stream) are combined inside the crystallizer to form ammonium sulfate. The reaction heat will drive the evaporation.
- In evaporation crystallization formation of ammonium sulfate requires removal of water from the feed solution. The crystallizer is heated with steam for the evaporation and the energy costs are the main portion of the running costs.

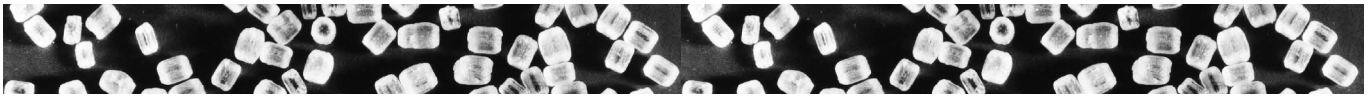
To minimize the energy cost in evaporation units we supply energy-efficient systems like Mechanical Vapor Recompression or multiple-effect evaporators.



Reaction crystallization capacity 145,000 tpa

Size matters

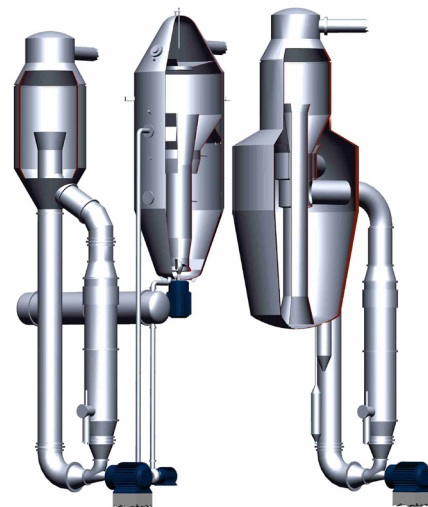
Ammonium sulfate fertilizer is priced on the basis of its size, with granular material commanding considerable premium over standard grade. GEA Messo PT has a large experience in supplying all types of crystallizers (FC, DTB, Oslo) and with it we can design ammonium sulfate plants to produce products ranging from 0,5 mm to 4 mm . If this is needed classifiers and sieves are made a part of our overall design.



Granular ammonium sulfate

Upgrading

For many decades, the Oslo crystallizer was the choice for producing large crystals; over time, in most existing installations, the productivity of these units has been increased greatly over their design point, with a commensurate decrease in the product crystal size. GEA Messo PT can improve the particle size made by these units by converting them to the DTB configuration. This upgrade can lead to the potential of improved product pricing, without a penalty on production rates.



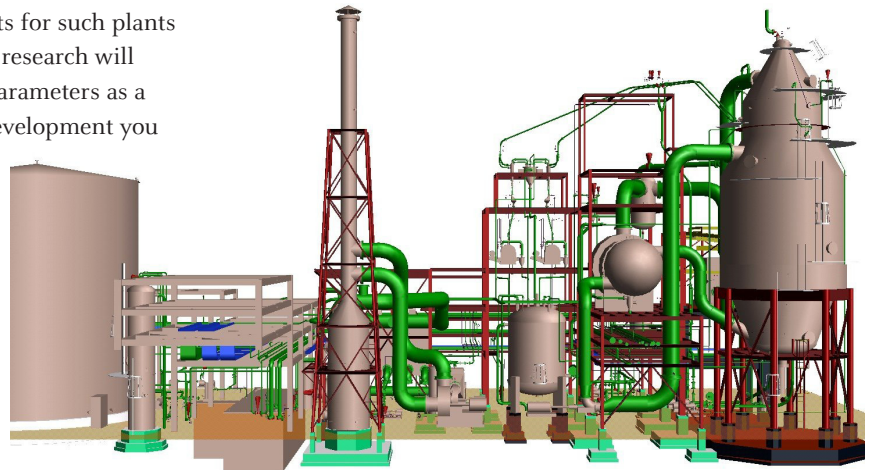
FC, DTB, Oslo type crystallizer

Ammonium sulfate as by-product

In the industrial practice the ammonium sulfate is usually a by-product. These solutions have a lot of impurities from different sources.

- organic impurities from the caprolactam or methyl metacrylate production or
- inorganic impurities from e.g. waste acids in a reaction crystallization or urea in gas washing liquids.

The combined effects of these impurities are complex and influence the purity and the crystal shape and size. GEA Messo PT with its experience in evaporation and crystallization knows where the general limits for such plants are. Our dedicated centers for crystallization research will investigate for your specific case all design parameters as a basis for our engineering and for any new development you may need.



Ammonium sulfate crystallizer in caprolactam industry



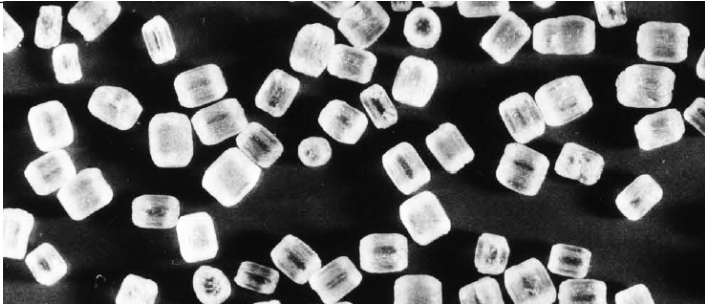
GEA Messo PT laboratory

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The right choice for you

GEA Messo PT has a reference list of over fifty successful ammonium sulfate crystallizer installations around the world, has several patents on associated process and equipment features, and continues to work hard on improving its technology for the benefit of its clients.

For the crystallization of ammonium sulfate, GEA Messo PT is the worldwide supplier that can offer all options available: reactive and evaporation crystallization, all types of crystallizers, energy conservation systems, systems for handling of impurities in complex feed streams. With this background we are ready to help you make the right choices leading to a successful project.



Contact us at:

www.gea-crystallization.com



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