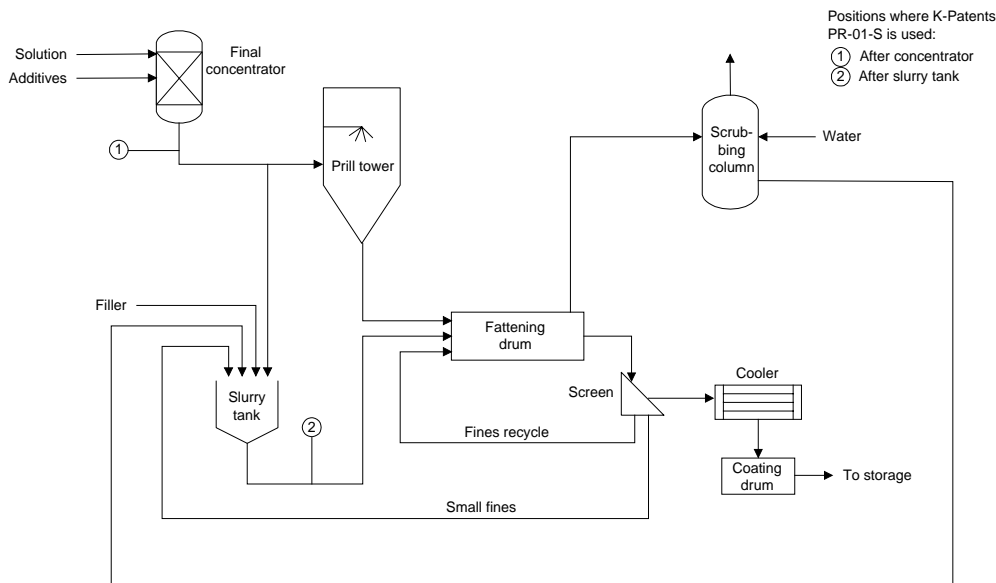


Ammonium Nitrate



Ammonium Nitrate NH_4NO_3

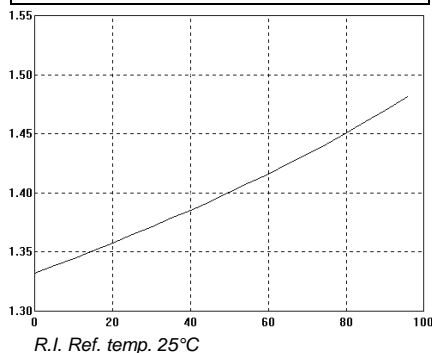
Soluble in

water, acetone, ether, alcohol

Typical end products

Fertilizers, explosives

Chemical curve: R.I. per Conc% b.w.



Introduction

The quality requirements of fertilizers have changed a lot since the early 1980's. Also the storing and spreading conditions have improved and enabled manufacturers to develop higher quality ammonium nitrate fertilizers.

Application

Ammonium nitrate is made in the reaction of nitric acid with ammonia. 95% ammonium nitrate solution and quality additives are fed into the prilling tower through a final concentrator where the solution is concentrated to 97.5-98%. Some of the concentrated solution flows into the slurry tank by gravity. In the prilling tower small pellets of ammonium nitrate are formed.

In the tank the filler is dispersed, the oversize and small fines are melted, the 97.5% ammonium nitrate solution from the concentrator is discharged and the moisture content of the mixture is adjusted by adding some scrubbing liquor.

The slurry is conveyed from the tank and divided into tiny droplets by hot air atomizing nozzles. These droplets are sprayed onto a curtain of falling granules made up of the product from the prilling tower and fines separated by screening.

The material is conveyed from the fattening drum discharge end to screens where it is classified into

four fractions. Right size product is fed to the fluidized bed cooler.

Cooled ammonium nitrate is treated against caking before storage. The treatment is performed in a rotary drum where the liquid coating agent made of oil and amine derivatives is sprayed.

Installation

Product quality is the main object of revamping. K-Patents Process Refractometer PR-01-S is used after the concentrator and after slurry tanks.

After the concentrator the solution of NH_4NO_3 is 90-98% and the process temperature is 160-180°C (320-356°F). After the slurry tank the solution of NH_4NO_3 is 90-98% and the process temperature is 150-160°C (302-338°F).

Typical measurement range is 60-100% NH_4NO_3 and typical accuracy is 0.2% NH_4NO_3 .