

STABILIZED AMMONIUM NITRATE RECOVERY TECHNOLOGY BASED ON LIQUIDATION OF AMMONIUM NITRATE AND GLUCANATE ADDITION

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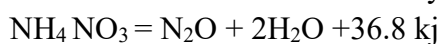
Abstract: This scientific in the article nitrate ammonium work release raw materials, ammonium nitrate liquefaction harvest to do and how by doing nitrate ammonium liquefaction and glucanate addition based on stabilized with ammonia saltpeter get technology about data given.

Key words: Cube crystal, tetragonal state, mass, napor tank, vacuum, granulator, evaporation, ammonia, nitrate acid

Ammonium nitrate atmosphere pressure under liquefaction temperature is between 50°C and 169°C from each other comparison volume and other properties with difference 5 crystals in the form of have Ammonium nitrate one crystal from the situation second crystal to the situation in the tooth heat separation or swallowing can

1. Cube crystal state 169.6-125.8°C
2. Tetragonal crystal state 25.8-84.2°C
3. Rhombic state 84.2 - 32.2°C
4. Rhombic the state is 32.2-(16.9)°C
5. The tetragonal state is -16.9°C

Ammonium nitrate in the water very good dissolves for example: 10 kg of saltpeter in 1 kg of water at a temperature of 100°C dissolves from a temperature of 110°C high when heated with ammonia nitrate ammonia and nitrate to acid breaks down; $\text{NH}_4\text{NO}_3 = \text{NH}_3 + \text{HNO}_3 - 732 \text{ kJ}$ up to 200 -270°C when heated decay as follows goes to:



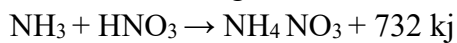
60-70s of XX century nitrogen acid work release and ammonia synthesis for industry to practice wide scope units entered and nitrate acid concentration to increase take came of this as a result being received nitrate acid concentration up to 58-60% delivered. This is 450-500 thousand tons per year ammonium Nitrate AS-67 and AS-72 are produced release big powerful units work release for necessary convenience created.

Ammonium nitrate work in release the following main raw materials applies to:

- a) Gaseous ammonia NH_3 - colorless steamer substance, general factory from the collector taken. To manufactor at the entrance of gas temperature should not be low, pressure while to be 0.15-0.25 MPa need Ammonia basically nitrate acid neutralization for is used.
- b) Nitrate acid HNO_3 – acid yellow colorful liquid, ammonia saltpeter to the shop factory AK-72M technological from the device pipe through comes. To sex at the entrance of acid concentration from 45% less absence (container the wall decaying don't go for), temperature from 50-70°C high not to be and the pressure should be 0.15-0.25 MPa Demand will be done. Glucanate - composition very different mud is a mineral.
- c) Glucanate sands not only the soil potassium, phosphorus, magnesium and trace elements: manganese, copper, zinc, boron and others with enrichment perhaps his structure improve, feed

substances take to throw prevention get moisture save stay, plant diseases reduce features there is. Also toxic didn't happen and chemical to the effect endurance properties with ammonia saltpeter stabilization for addition as apply Ammonium nitrate get for applied main devices that can be seen if, NIF (neutralization from the heat use)- Ammonium nitrate solution get for pos. 5,6,7 and NIF apparatus in T-1 is used.

NIF device the following from parts consists of: reactor - neutralizer part, gaseous ammonia common from the collector on the overpass electricity antimony valve through ammonia in manufactory poz-1 contained liquid to the top of the divider enters Pressure from the standard in shot pose-2 liquid to the separator goes, then ammonia in the composition liquid ammonia separated and is evaporated. It is gaseous ammonia, it technological condensate from 80°C with less didn't happen to the temperature after heating ammonia pos. 5, 6, 7 and to the NIF apparatus in T-1 will come in NIF hardware two process happen will be, nitrogen acid gaseous ammonia with the following reaction according to neutralization process:



Reaction as a result separated heat at the expense of solution contained the water evaporation. The reaction heat effect and coming out solution concentration straight away entering acid to the concentration and to the reagent temp depend from the NIF apparatus coming out with process steam together with NH₃ with together with NH₄NO₃ of to be lost reduce for, process at a high pressure of 0.25 MPa take will go 58-60% concentrated nitric acid solution juice in heater 1 steam with a temperature of 70-80°C heated, special additives (sulphuric and phosphorus acid) with mixed and to NIF-72 3 hardware is sent. Ghazal in case ammonia in heater 2 to a temperature of 120–130°C is heated and to the NIF hardware is given this in hardware Nitrate acid at a temperature of 155-165°C is neutralized. In the neutralizer harvest has been ammonium nitrate solution NH₄NO₃ 89-92% and HNO₃ and concentration 2-5 g/l solution neutralizer 5 and combined evaporator 6 ha given, his bottom to the part the air using blower 27 through heater 4 at a temperature of 185°C heated the air is given in a combi steamer Complete evaporation of water is increased contains 99.7– 99.8% NH₄NO₃ without swimming saltpeter liquefaction NH₄NO₃ held liquefaction is taken. Ammonium nitrate solution pass the neutralizer 7 filters 8 and to the tank 9 falls and with submersible pump 10 up installed effort tank 13 ha is driven pressure tank under 13 Granulation Tower 18 is located granulation tower 3 vibes above granulator is located granulation tower height 50-55M. 500 thousand m³/hour in the amount cooling for the air of the tower bottom cone in the part spaces through to the tower is given and suction through ventilators 16 ammonium nitrate from the dust from the scrubber cleaned at 17 after into the atmosphere released, ammonium nitrate granules flying drop off during 90-120°C is cooled.

Granulated ammonium nitrate conveyor according to granulation from the tower conveyor 20 ha and to boil layered refrigerator 22 ha is given every one to the department independent the air supply has been fan from 24 the air is given, everyone in the department cooling of air temperature heat exchange devices through managed. Chilled pellets using elevator 21 rotary drum to 19 is given there additions with processing given sent for packing. Stabilized with ammonia saltpeter get for glucanate addition the following work release stage to add through reach possible from NIF hardware came out reaction to the mixture special mixer in reactors glucanate dosage by doing to go and granulation. Ammonium nitrate packaging for used to the bags the following requirements

put: ammonia Saltpeter "Nitron" in store #131, or other work producers by work issued polypropylene to the bags is packed.

Polypropylene bags Ts 6.1-00203849-105:2007. technical requirements answer to give it is necessary.

Type V - Valve polyethylene bag

Bag width - 500 mm

Length – 840 mm

Valve depth - 130 mm

Bags to kip is attached. Bags in warehouses when saving kip to diapers proportional in the situation to be named a must bags closed in warehouses of the sun straight away from the rays protected without storage a must bags heated in buildings when saved, they heating up from devices at least 1m away placement need also a bag moods stable to stacks to be named need Kip's bottom of the line to the bottom fat hungry obstacle put to the goal according to is considered bags GOST 2-85. To demand appropriate marked to be a must to mark while the following requirements put: work of the issuer name or his product symbol of the product name;

product brand

party number and issued date;

GOST 2-85. shown in of nitrogen guaranteed amount

Transport marking own into the following danger signs take condition:

Ready the product is ammonia saltpeter

Mechanic without impurities granulated product.

In the water good dissolves

Chemical formula – NH_4NO_3

Molecular weight - 80

Density – (1.69, 1.725) g/cm^3 at 190°C high in temperature active respectively breaks down. In the department with ammonia of saltpeter concentration - 82, 98.3 and 99.5%, solution temperature from 160 to 190°C.

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