AMMONIUM NITRATE

Technical Information

NITROGEN PRODUCTS

Industrial Grade

Properties

SDS #1020

	Donora, PA & Lomo, MO
Ammonium Nitrate, % by weight	98.8
Moisture, % by weight	≤0.1
Screen Analysis[a]	
% by weight on 6 mesh	0
% by weight through 20 mesh	≤1
Bulk Density, typical, pneumatic	
g/cc	0.80
lbs/cuft	50

Typical Size Distribution

U.S. Standard Mesh	+8	+10	+12	+14	+16	+20	Fines
Average % retained	8	29	38	22	2	0.75	0.25

[a] As manufactured. Screen analysis changes with with handling.
[b] As manufactured. Bulk density as received may be higher [0.84 g/cc (52 lbs/cu ft)] depending on types and amounts of handling prior to receipt.

Hazardous Shipping Description

Ammonium Nitrate 5.1 UN1942 III or
Ammonium Nitrate Fertilizer 5.1 UN2067 III

Product Description

DYNO NOBEL AMMONIUM NITRATE prills are industrial grade and specifically designed to be used as a solid oxidizer ingredient for explosive compositions such as ANFO, WR ANFO, Heavy ANFO emulsion and watergels. They are small-sized (average diameter range between 0.055 to 0.078 in (1.4 to 2.0 mm), low-moisture content, non-setting, porous spheres (prills) which are a lower density than agricultural grade ammonium nitrate used for fertilizer. The particle density of the prills is such that, when liquid fuel is properly applied to and mixed with them, the prills absorb the fuel uniformly which enhances reactivity. AMMONIUM NITRATE prills are very soluble in water and do not precipitate with any common chemicals.

Application Recommendations

- Low density AMMONIUM NITRATE is used extensively in the mining industry and is intentionally made very porous to allow for the rapid uptake of liquid fuel oil. The prill is coated with a trace amount of a waxy anti-caking material to enhance flowability and handling characteristics. Consult your Dyno Nobel representative for additional information if needed.
- AMMONIUM NITRATE will decompose into ammonia and nitric acid fume at 350°F.

See Product Disclaimer on page 2

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Groundbreaking Performance™

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Application Recommendations (continued)

- **ALWAYS** wash vessels containing AMMONIUM NITRATE thoroughly before attempting repairs requiring welding.
- **ALWAYS** check with the bulk emulsion explosive or matrix manufacturer to ensure compatibility before using ANFO containing Dyno Nobel prilled AMMONIUM NITRATE in Heavy ANFO or repumpable emulsion/ ANFO blends.
- **ALWAYS** keep doors, hatches and lids closed when not in use. Inspect all tanks and bins regularly for cracks and leaks.
- Industrial grade prilled ammonium nitrate is susceptible to breakage from moisture, humidity, heat, temperature cycling, pressure and pneumatic or mechanical handling. Fines can result producing possible caking or lumping as well as decreased product flow characteristics / increased bulk density.
- **ALWAYS** design storage and process facilities to minimize repeated pneumatic and mechanical handling. Whenever possible, choose mechanical rather than pneumatic methods to off-load or otherwise transfer ammonium nitrate prills.
- **ALWAYS** use an air transfer pressure of 7–8 psig to maintain prill quality where bulk deliveries are transferred to storage by pneumatic conveyance.
- **NEVER** exceed 8-10 psig air pressure.
- **ALWAYS** use equipment especially designed to blend and load ANFO, Heavy ANFO or repumpable emulsion / ANFO blends. Bulk delivery equipment should be calibrated periodically to ensure quality.
- **ALWAYS** purge all hoses, piping, augers and especially bins or tanks that have integral augers before discontinuing loading or mixing. AMMONIUM NITRATE prill left in process equipment can make start up difficult and even cause damage.
- **ALWAYS** consider air vibrators for bins, bulk trucks and railcars to assist with the flow of material.

Transportation, Storage and Handling

- Oxidizers must be transported, stored, handled and used in conformity with all applicable federal, state, provincial and local laws and regulations.
- For recommended good practices in transporting, storing, handling and using this product, see the Safety Library Publications of the Institute of Makers of Explosives and/or consult the many publications that address transportation, storage and handling of ammonium nitrate.
  - **The Fertilizer Institute:** AMMONIUM NITRATE Packaging, Handling, Transportation, Storage and Use.
  - **Bureau of Mines:** I 28.23:6773 Explosive Hazards of Ammonium Nitrate Under Fire Exposure.
  - **International Fertilizer Industry Association:** Handbook for the Safe Storage of AMMONIUM NITRATE Based Fertilizers.
  - **Institute of Makers of Explosives**: Recommendations for the Transportation of Explosives, Division 1.5 & AMMONIUM NITRATE Emulsions, Division 5.1 Bulk Packaging.
  - Unauthorized access to industrial grade AMMONIUM NITRATE must be denied at each step during transportation and storage.
- **ALWAYS** rotate inventory by using the oldest product first.
- **ALWAYS** choose bins and tanks that are designed to keep the weight of the bulk material from compacting into transfer augers that are located directly beneath them.
- **ALWAYS** empty and clean bulk tanks and bins routinely to prevent product build-up on walls.
- **ALWAYS** minimize inventory during warm weather and high humidity conditions. Packaged product may harden with temperature cycling; bulk material may cake, lump or break down (fines).
- **ALWAYS** keep prilled ammonium nitrate dry. Choose transportation, processing and storage containers or equipment without openings though which water or moisture can enter.
- Dyno Nobel AMMONIUM NITRATE is available in bulk by railcar or truck.

Dyno Nobel Inc.
2795 East Cottonwood Parkway, Suite 500, Salt Lake City, Utah 84121 USA
Phone 800-732-7534 Fax 801-328-6452 Web www.dynonobel.com

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