

**Technical Bulletin****AMINE N-1****DESCRIPTION**

Amine N-1 is a dark-colored liquid obtained as a by-product from a commercial ethanolamines operation. It is a mixture composed chiefly of aliphatic tertiary amines. Typical TEA content ranges from approximately 85 – 99% with the balance of the product being distillation residues (ethanolamine oligomers).

**APPLICATIONS**

Amine N-1 is used as a neutralizer and pH control agent. It is also used as an intermediate in the preparation of corrosion inhibitors, emulsifiers, and cement additives.

**SALES SPECIFICATIONS**

<u>Property</u>	<u>Specifications</u>	<u>Test Method*</u>
Amine Value, mg KOH/g	Report	ST-5.5
Color, Gardner	12 max.	ST-30.13
Equivalent Weight	148.0 – 155.0	ST-5.5
DEA	0.19 max.	ST-35.99
MEA	0.5 max.	ST-35.99
Water, wt%	0.15 max.	ST-31.53, 6

\*Methods of Test are available from Huntsman Corporation upon request.

**ADDITIONAL INFORMATION****Regulatory Information**

DOT/TDG Classification	Not Regulated
HMIS Code	1-1-0
WHMIS Classification	D2B
CAS Numbers	102-71-6 68953-70-8

**Chemical Control Laws**

Australia, AICS	Listed
Canada, DSL	Listed
Europe, EINECS/ELINCS	Listed
Japan, METI	Not determined
United States, TSCA	Listed

**Typical Properties**

Flash point, PMCC, °F (°C)	400 (204.4)
Freezing point, °F (°C)	68 (20)
Specific gravity, 20/20°C	1.13
Viscosity, cSt	
32°F	3000
77°F	700
100°F	300
Iron, ppm	<350
pH, 50 wt% aqueous solution	11
Solubility in water	Complete

## TOXICITY AND SAFETY

The toxicological properties of Amine N-1 have not been specifically evaluated. However, it is considered that reliable estimates can be made based on the fact that the principal component of this product is triethanolamine.

Amine N-1 is considered to be practically nontoxic by single oral or dermal doses. It is judged to be slightly irritating to the skin and eye. In the DOT skin corrosion test, Amine N-1 was found to be "noncorrosive." It is not regulated, therefore, by the DOT for transportation purposes.

Should accidental contact with the eyes occur, flush with water for 15 minutes. Splashes on the skin should be removed by washing with soap and water. Accidental ingestion is best treated by taking at least one ounce of vinegar in an equal amount of water.

## HANDLING AND STORAGE

Amine N-1 may be satisfactorily stored in carbon steel.

Copper, zinc, lead, or alloys containing any of these materials should not be used since they will be attacked by the product. Because of the product's high freezing point and viscosity, it will be necessary to provide heat to the storage tank. Generally, this can be done by utilizing either internal or external heating coils of a suitable area to heat the tank contents. If these coils are internal, they should be built into the tank about six inches above the floor and can operate on low-pressure steam. The coils should be constructed in such a manner as to allow the condensate to drain. Stainless steel is the preferred material of construction.

Transfer lines can be of the same material as the storage tank. Since the product will leach conventional pipe dopes from threaded connections, the lines should be welded or flanged. Satisfactory gasketing materials are Garlock 7021, U.S. Rubber 899, John Crane 333, Johns-Manville 70, or equivalent.

The lines should be steam traced. This can be accomplished by affixing copper tubing, approximately 3/8 of an inch in diameter, to the underside of the line, insulating the tube to the line, and using low-pressure steam in the tubing.

Centrifugal pumps constructed of carbon steel or black iron are satisfactory. Either pump packing or a mechanical seal may be used. Braided TEFLON<sup>®</sup> elastomer and polypropylene are satisfactory packing materials. Seals may be John Crane Type 9, Durametallc Type RO-TT, or equivalent with either stellite and carbon or tungsten faces and TEFLON<sup>®</sup> V-rings.

## AVAILABILITY

Amine N-1 is available in tank cars, tank trucks and in drums of 520 pounds (235 kilograms) net weight. Samples are available upon request.

1043-0610

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