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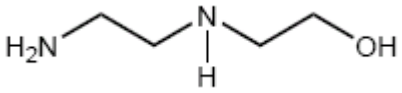
Technical Bulletin

AMINOETHYLETHANOLAMINE (AEEA)

2-[(2-aminoethyl)amino]-ethanol

AMINOETHYLETHANOLAMINE is a single component product, with minimal ethylenediamine impurity. The product is water-soluble, clear, colorless, and slightly viscous. An ammonia-like odor is typical of the product.



APPLICATIONS

- Chelating agents
- Fabric softeners
- Lube oil and fuel additives
- Surfactants
- Textile additives
- Urethane chemicals

SALES SPECIFICATIONS

Property	Specifications	Test Method*
Appearance	Colorless liquid; substantially free of foreign matter	ST-30.1
Assay, wt. %	99.6 min.	ST-35.228
Color, Pt-Co	25 max.	ST-30.12
Ethylenediamine, ppm	100 max.	ST-35.228
Water content, wt. %	0.2 max.	ST-31.53, 6

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

ADDITIONAL INFORMATION

Regulatory Information

DOT/TDG Classification	Amines, liquid, corrosive, N.O.S. (Aminoethylethanolamine)
HMIS Code	3-1-0
WHMIS Classification	D2A, D2B, E
CAS Number	111-41-1

Chemical Control Laws

Canada, DSL	Listed
United States, TSCA	Listed

Typical Physical Properties

Amine value, mg KOH/g	1070
Boiling point, °C (°F)	243 (470)
Coefficient of expansion, 1/°C, 20°C	0.00059
Density, g/ml, 20°C	1.03
Dielectric constant, 25°C and 1 kHz	22.0
Electrical conductivity, µmhos/cm, 24°C	0.47
Flash point, PMCC, °C (°F)	132 (270)
Heat of formation, kcal/mol	- 64.8
Heat of vaporization, BTU/lb	241.6
Heat of combustion, BTU/lb	12465
Ionization constants, K_b 1, 25°C	3.0E-5
Kinematic viscosity, cSt, 25°C	98
Kinematic viscosity, cSt, 40°C	48.5
Molecular weight, Linear component	104.15
Molecular weight, Typical product	104.2
Nitrogen content, %	26.8
pH	11.5
Refractive index, 25°C	1.484
Specific gravity, 25/25°C	1.03
Specific heat, cal/g °C, 20°C	0.490
Surface tension, dynes/cm, 20°C	44.8
Thermal conductivity, cal/cm-sec-°C, 20°C	0.00059
Vapor pressure, mm Hg, 20°C (68°F)	< 0.01
Viscosity, cP, 20°C	88.4
Water Solubility	> 10

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TOXICITY AND SAFETY

Because of the fragility of eye tissue, almost any eye contact with any ethyleneamine may cause irreparable damage, even blindness. A single, short exposure to ethyleneamines, may cause severe skin burns, while a single, prolonged exposure may result in the material being absorbed through the skin in harmful amounts. Exposures have caused allergic skin reactions in some individuals. Single dose oral toxicity of ethyleneamines is low. The oral LD_{50} for rats is in the range of 1000 to 4500 mg/kg for the ethyleneamines.

The principal hazards that arise in working with aminoethylethanolamine (AEEA) are those associated with similar organic amines; namely, a corrosive action on skin and eyes. Precautions should be taken to prevent contact with these parts of the body such as by use of protective clothing and chemical goggles. If contact occurs, immediately flush the exposed area with plenty of water for at least 15 minutes. Eye exposures should be examined by a physician. Contaminated clothing should be laundered before reuse. If ingestion occurs, do not induce vomiting. Have the individual drink a large amount of water (or milk, if it is readily available) and transport them to a medical facility immediately.

HANDLING AND STORAGE

In order to maintain the high degree of purity with which aminoethylethanolamine (AEEA) is manufactured and shipped, the following storage and handling considerations are recommended:

Dry Inert Gas Blanket

This product should be stored under a dry inert gas blanket, such as nitrogen, to minimize contamination resulting from contact with air and water.

Materials of Construction

If slight coloration of the ethyleneamine is acceptable, storage tanks may be made of carbon steel or black iron, provided they are free of rust and mill scale. However, if the amine is stored in such tanks, color may develop due to iron contamination. If iron contamination cannot be tolerated, tanks constructed of types 304 or 316 stainless steel should be used. (Note: Because they are quickly corroded by amines, do not use copper, copper alloys, brass, or bronze in tanks or lines.) Recommended storage construction for AEEA is stainless steel.

Storage Temperature

Aminoethylethanolamine (AEEA) has a pour point of -38°C. To avoid freezing, the product should be maintained above this temperature. At temperatures below 5°C, viscosity becomes so high that the product cannot be easily pumped.

Spills or Leaks

Small spills should be covered with inorganic absorbents and disposed of properly. Organic absorbents have been known to ignite when contaminated with amines in closed containers. Certain cellulosic materials used for spill cleanup such as wood chips or sawdust have shown reactivity with ethyleneamines and should be avoided. Large spills should be contained and recovered. Water may be used for clean-up purposes, but avoid disposing of the material into sewers or natural water bodies. Disposal should be in accordance with all federal, state and local laws, regulations, and ordinances. Ethyleneamine leaks will frequently be identified by the odor (ammoniacal) or by the formation of a white, solid, waxy substance (amine carbamates). Inorganic absorbents or water may be used to clean up the amine waste.

AVAILABILITY

Aminoethylethanolamine (AEEA) is available in bulk and in 55-gallon drums of 213 Kg net weight. Samples are available by contacting our sample department at 1-800-662-0924.

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