

Product Safety Summary

N-2(Aminoethyl)ethanoamine

This Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the Summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the Material Safety Data Sheet (MSDS) for the chemical substance.

Chemical Identity

Abbreviation:	AEEA
CAS Number:	111-41-1
Formula:	$C_4H_{12}N_2O$
Common Names:	Aminoethylethanolamine 1-(2-Hydroxyethylamino)-2-aminoethane 2-(2-Hydroxyethylamino)ethylamine N-(2-Hydroxyethyl)-1,2-ethanediamine N-2(2-Hydroxyethyl)ethanediamine N-(Aminoethyl)ethanolamine

Product Overview

- N-2(Aminoethyl)ethanolamine (AEEA) is a clear, colorless to pale yellow liquid with a mild ammonia-like odor.
- AEEA is a chemical intermediate that is used in the production of a variety of materials such as corrosion inhibitors, lubrication oil additives, chelating agents, surfactants, and textiles.
- The primary hazards of AEEA exposure include severe skin burns and eye damage. In addition, exposure to the product may cause an allergic skin reaction. Based on results of animal studies, AEEA may damage fertility and may cause birth defects.
- No airborne limits have been established for AEEA vapor concentrations in the work environment by Occupational Health and Safety Administration (OSHA) or American Conference of Governmental Industrial Hygienists (ACGIH).
- All persons associated with the transportation, storage or handling of AEEA (or products containing AEEA) must understand the hazards. This includes training in the recommended normal and emergency handling procedures.
- For further safety and health information, refer to the current Material Safety Data Sheet (MSDS).

Physical/Chemical Properties

- AEEA is a clear, colorless to pale yellow liquid with a mild ammonia-like odor.
- The pH of AEEA is 11.8 (111 g/l, 20°C). It is a corrosive liquid.
- The density of AEEA is 1.024 g/cm³ (25°C) and is denser than water.
- The boiling point of AEEA is 243.1 °C (469.6°F) and the melting point is less than -18°C (-0.4°F).

- The flash point of AEEA is 132°C (269.6°F). It is classified as a combustible liquid and will sustain a fire, when ignited.
- The vapor pressure of AEEA is < 1 mbar (20°C).
- AEEA is water soluble.

Health Information

Acute Hazards

AEEA is not likely to be an acute hazard by inhalation. If swallowed, AEEA has low toxicity, but may cause burns to the mouth and throat and irritation to the gastrointestinal tract. Due to its low vapor pressure, skin exposure represents the primary hazard in most applications. Skin contact may result in severe chemical burns and may cause an allergic reaction. Workers must be properly instructed and supervised in the handling of AEEA.

Effects on Respiratory System:

Exposure to AEEA aerosol droplets may result in respiratory tract irritation.

Effects on Eyes:

Exposure to AEEA may result in severe eye damage.

Effects on Skin:

Skin contact with AEEA may result in severe chemical burns. The product may cause an allergic reaction particularly for individuals who have had a previous allergic reaction to AEEA or similar materials.

Effects on Ingestion:

Ingestion may result in chemical burns to the mouth and throat and irritation of the gastrointestinal tract.

Chronic Hazards

Based on animal data, AEEA may impair fertility and may adversely affect the developing fetus.

Refer to the MSDS for the most up-to-date toxicology information.

Environmental Information

AEEA is acutely harmful to aquatic organisms and it is not expected to bioaccumulate. AEEA is readily biodegradable in the environment.

Due to the pH-value of the product, neutralization is typically required before discharging to treatment facilities.

Additional Hazard Information

Because AEEA is combustible, care must be taken when handling it to avoid exposure to flames and other sources of ignition.

The following safety recommendations must be observed:

- Store in an area designed for combustible liquids.
- Specify proper electrical equipment and adequate grounding for static electricity.
- Maintain adequate ventilation in all work areas
- Provide adequate firefighting equipment, including automatic sprinklers, in work and storage areas.

Exposure Potential

Due to its low vapor pressure, absorption through the skin represents the most likely and potentially the most significant route of exposure to AEEA under most known use conditions.

Workplace exposure should be limited by the use of engineering controls, such as ventilation and hoods. For emergency situations and some specially controlled areas, personal protective equipment, such as respirators, may be employed. In general, skin and eye exposure to organic chemicals, such as AEEA, are prevented through the use of protective eye and face equipment and impermeable gloves and clothing.

Regulations involving hazardous chemicals are continually evolving and thus exposure guidelines are reviewed regularly and modified whenever new information dictates a change. It is important to be aware of the current legislative requirements.

Risk Management

The potential hazards associated with AEEA can be avoided if workers are adequately instructed and supervised on the proper procedures for handling AEEA.

Every worker should be trained to realize that exposure to a hazardous chemical requires immediate washing of affected areas using large amounts of soap and water, and that immediate attention may markedly decrease the severity of any health effects.

Properly designed emergency showers and eyewash fountains should be placed in convenient locations wherever AEEA is used. All employees should know the location and operation of this equipment. All equipment must be frequently inspected to make sure they are in proper working condition.

Chemical resistant protective gloves should be worn when handling AEEA. Suitable glove types include chloroprene rubber (0.5 mm coating thickness) and nitrile rubber (0.4 mm coating thickness).

Chemical splash goggles should be worn when handling AEEA. If AEEA enters the eye, flush with water for at least 15 minutes, and consult a physician.

If vapors or mists are generated, wear a NIOSH/MSHA approved organic vapor/mist respirator. If inhaled, move the person to fresh air, aid in breathing, if needed, and consult a physician.

If AEEA is swallowed, drink plenty of water and seek medical attention.

Federal/Science Findings

U.S Department of Labor – Occupational Safety and Health Administration (OSHA)
http://www.osha.gov/dts/chemicalsampling/data/CH_254480.html

American Conference of Governmental Industrial Hygienists (ACGIH)
<http://www.acgih.org>

National Institute for Occupational Safety and Health (NIOSH)

<http://www.cdc.gov/niosh/topics/organsolv/>

Contact Information

<http://www.basf.com>

MSDS

http://worldaccount.basf.com/wa/PublicMSDS~en_US/Search

References

Ethyleneamines Best Practices Manual, Ethyleneamines Product Stewardship Discussion Group (EPSDG), 2009

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