Safety Data Sheet
N-(2-Aminoethyl)ethanolamine

1. Identification

Product identifier used on the label

N-(2-Aminoethyl)ethanolamine

Recommended use of the chemical and restriction on use

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula:	C(4)H(12)N(2)O
Synonyms:	Aminoethylethanolamine

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Skin Corr./Irrit.	1B	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Skin Sens.	1B	Skin sensitization
Repr.	Add. cat. lact.	Reproductive toxicity
Repr.	2 (fertility)	Reproductive toxicity
Repr.	1B (unborn child)	Reproductive toxicity
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H317	May cause an allergic skin reaction.
H362	May cause harm to breast-fed children.
H335	May cause respiratory irritation.
H360	May damage the unborn child. Suspected of damaging fertility.
H314	Causes severe skin burns and eye damage.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe dust or mist.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P272	Contaminated work clothing should not be allowed out of the workplace.
P263	Avoid contact during pregnancy/while nursing.
P264	Wash with plenty of water and soap thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.

Precautionary Statements (Response):

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P362 + P364	Take off contaminated clothing and wash before reuse.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

DANGER:
CORROSIVE LIQUID.
Corrosive to the skin, eyes and respiratory system.
RISK OF SERIOUS DAMAGE TO EYES.
CAUSES SEVERE BURNS.
Contains a suspect teratogen.
May cause sensitization by skin contact.
INGESTION MAY CAUSE GASTRIC DISTURBANCES.
Avoid contact with the skin, eyes and clothing.
Avoid inhalation of mists/vapours.
Use with local exhaust ventilation.
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.
Wear NIOSH-certified chemical goggles.
Wear full face shield if splashing hazard exists.
Wear chemical resistant protective gloves.
Wear protective clothing.
Eye wash fountains and safety showers must be easily accessible.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
111-40-0	>= 0.5 - <= 0.5 %	2,2'-iminodi(ethylamine)
111-41-1	>= 99.5 - <= 100.0 %	2-(2-aminoethylamino)ethanol

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
111-41-1	>= 99.5 %	2-(2-aminoethylamino)ethanol

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing. Obtain medical attention.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash affected areas with water while removing contaminated clothing. Immediate medical attention required.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Hold eyelids open to facilitate rinsing. Immediate medical attention required.

If swallowed:
Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further symptoms are possible

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment:	Treat according to symptoms (decontamination, vital functions), no known specific antidote. Pulmonary odema prophylaxis. Medical monitoring for at least 24 hours.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture
Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters
Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear a NIOSH-certified [or applicable equivalent per country] self-contained breathing apparatus or full face supplied air respirator. Do not get in eyes, on skin, or on clothing.

Environmental precautions
This product is not regulated by RCRA. This product is not regulated by CERCLA ('Superfund'). Do not discharge into waterways or sewer systems without proper authorization.

Methods and material for containment and cleaning up
For large amounts: Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of material immediately in accordance with regulations.
Spills should be contained, solidified, and placed in suitable containers for disposal. Collect waste in suitable containers, which can be labeled and sealed.

7. Handling and Storage

Precautions for safe handling
Ensure thorough ventilation of stores and work areas. Product should be worked up in closed equipment as far as possible. Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:
See MSDS section 5 - Fire fighting measures.

Conditions for safe storage, including any incompatibilities
Segregate from acids and acid forming substances.

Further information on storage conditions: Keep container tightly closed and in a cool place. Keep away from sources of ignition - No smoking.

8. Exposure Controls/Personal Protection

Advice on system design:
Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:
Chemical resistant protective gloves, chloroprene rubber (Neoprene), nitrile rubber (Buna N), Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eye protection:
Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. Do not get in eyes, on skin, or on clothing. Handle in accordance with good industrial hygiene and safety practice. Remove contaminated clothing immediately and dispose of safely. Contaminated equipment or clothing should be cleaned after each use or disposed of. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). When using, do not eat, drink or smoke. Do not take contaminated clothing home to be laundered.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	mild, ammonia-like	
Odour threshold:		Not determined due to potential health hazard by inhalation.
Colour:	colourless	
pH value:	11.8	(111 g/l, 20 °C)
Melting point:	< -18 °C	
Boiling point:	243.1 °C	(1,013.25 hPa) (other)
Flash point:	132 °C	(closed cup) Literature data.
Flammability:	hardly combustible	
Lower explosion limit:		For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.
Upper explosion limit:		For liquids not relevant for classification and labelling.
Autoignition:	368 °C	Literature data.
Vapour pressure:	< 1 mbar	(20 °C)
Density:	1.024 g/cm3	(25 °C) (pyknometer)
Relative density:	1.03	(20 °C) (calculated)
Partitioning coefficient n-octanol/water (log Pow):	-1.46	(25 °C) (OECD Guideline 107)
Self-ignition temperature:		not self-igniting
Thermal decomposition:	310 °C, 220 kJ/kg (DSC (DIN 51007)) Thermal decomposition above the indicated temperature is possible. It is not a self-decompositionable substance.	
Viscosity, dynamic:	141 mPa.s	(20 °C) Literature data.
Particle size:		The substance / product is marketed or used in a non solid or granular form.
Solubility in water:	1,000 g/l	(25 °C) Literature data., miscible
Miscibility with water:		miscible in all proportions
Molar mass:	104.15 g/mol	
Evaporation rate:		Value can be approximated from Henry's Law Constant or vapor pressure.

10. Stability and Reactivity

Reactivity

Oxidizing properties:
not fire-propagating (other)

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

Chemical stability

Possibility of hazardous reactions
The product is chemically stable.
Reacts with acids. Reacts with oxidizing agents. Reacts with isocyanates.

Conditions to avoid
Avoid extreme temperatures. See MSDS section 7 - Handling and storage.

Incompatible materials
acids, isocyanates, oxidizing agents

Hazardous decomposition products

Decomposition products:
Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxides
Hazardous decomposition products: ethylenediamine, nitrogen oxides

Thermal decomposition:
310 °C, 2 K/min (DSC (DIN 51007))
Thermal decomposition above the indicated temperature is possible. It is not a self-decompositionable substance.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: The inhalation of a highly enriched/saturated vapor-air-mixture represents an unlikely acute hazard. Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact.

Oral
Type of value: LD50
Species: rat (male/female)
Value: approx. 2,150 mg/kg (BASF-Test)

Inhalation
Species: rat
Value: (IRT)
Exposure time: 8 h
No mortality within the stated exposition time as shown in animal studies.

Dermal
Type of value: LD50
Species: rat (male/female)
Value: > 2,000 mg/kg (BASF-Test)

Assessment other acute effects
Assessment of STOT single:
Causes temporary irritation of the respiratory tract.

Target organ: Respiratory system

Irritation / corrosion
Assessment of irritating effects: Corrosive! Damages skin and eyes. May cause severe damage to the eyes.

Skin

Species: rabbit
Result: Corrosive.
Method: BASF-Test

Eye
Species: rabbit
Result: Risk of serious damage to eyes.
Method: BASF-Test

Sensitization
Assessment of sensitization: Sensitization after skin contact possible.

Mouse Local Lymph Node Assay (LLNA)
Species: mouse
Result: sensitizing
Method: OECD Guideline 429

Aspiration Hazard
No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in animal studies.

Genetic toxicity
Assessment of mutagenicity: Most of the results from the available studies show no evidence of a mutagenic effect. The substance was not mutagenic in studies with mammals.

Carcinogenicity
Assessment of carcinogenicity: Under certain conditions the substance can form nitrosamines. Nitrosamines are carcinogenic in animal studies.

Reproductive toxicity
Assessment of reproduction toxicity: The results were determined in a Screening test (OECD 421/422). The results of animal studies suggest a fertility impairing effect.

Teratogenicity
Assessment of teratogenicity: The results were determined in a Screening test (OECD 421/422). The substance caused malformations/developmental toxicity in laboratory animals.

Other Information
Together with nitrosating agents (f. i. nitrites, nitrogen oxides) nitrosamines may be formed under certain conditions. Nitrosamines showed a carcinogenic effect in animal experiment.
May cause harm to the unborn child.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further symptoms are possible

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish
LC50 (96 h) 640 mg/l, Pimephales promelas
Nominal concentration.

Aquatic invertebrates
EC50 (48 h) 22 mg/l, Daphnia magna (OECD Guideline 202, part 1)
Nominal concentration. Literature data.

Aquatic plants
EC50 (72 h) 358 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9)
Nominal concentration. After neutralization a reduction in harmful effect can be observed.

EC10 (72 h) 156 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9)
Nominal concentration. After neutralization a reduction in harmful effect can be observed.

Chronic toxicity to fish
Study does not need to be conducted.

Chronic toxicity to aquatic invertebrates
Study does not need to be conducted.

Assessment of terrestrial toxicity
Study does not need to be conducted.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms
DIN 38412 Part 8 bacterium/EC50 (17 h): 135 mg/l
Nominal concentration.

OECD Guideline 209 activated sludge, industrial/EC20 (30 min): > 1,000 mg/l
Nominal concentration.

DIN 38412 Part 8 bacterium/EC10 (17 h): 82.2 mg/l
Nominal concentration.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Readily biodegradable (according to OECD criteria).

Elimination information

> 60 % BOD of the ThOD (28 d) (OECD Guideline 301 F) (activated sludge, domestic)

Assessment of stability in water
According to structural properties, hydrolysis is not expected/probable.

Bioaccumulative potential

Bioaccumulation potential
Accumulation in organisms is not to be expected.

Bioconcentration factor: < 0.2 (42 d), Cyprinus carpio (OECD Guideline 305 C)
Literature data.

Bioconcentration factor: 2.1 - 3.7 (42 d), Cyprinus carpio (OECD Guideline 305 C)
Literature data.

Mobility in soil

Assessment transport between environmental compartments
The substance will not evaporate into the atmosphere from the water surface.
The data refers to the undissociated form of the substance.
Adsorption to solid soil phase is not expected.
The data refers to the undissociated form of the substance.

Additional information

Other ecotoxicological advice:
Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:
Do not discharge substance/product into sewer system. Dispose of in accordance with national, state and local regulations.

Container disposal:
Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport
USDOT

Hazard class:	8
Packing group:	II
ID number:	UN 2735
Hazard label:	8
Proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (contains 2-(2-AMINOETHYLAMINO)ETHANOL)

Sea transport
IMDG

Hazard class:	8
Packing group:	II
ID number:	UN 2735
Hazard label:	8
Marine pollutant:	NO
Proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (contains 2-(2-AMINOETHYLAMINO)ETHANOL)

Air transport

IATA/ICAO

Hazard class:	8
Packing group:	II
ID number:	UN 2735
Hazard label:	8
Proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (contains 2-(2-AMINOETHYLAMINO)ETHANOL)

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Acute; Chronic

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	111-41-1	2-(2-aminoethylamino)ethanol

NFPA Hazard codes:
Health : 3 Fire: 1 Reactivity: 0 Special:

HMIS III rating
Health: 3 Flammability: 1 Physical hazard: 0

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Skin Corr./Irrit.	1B	Skin corrosion/irritation
Aquatic Acute	3	Hazardous to the aquatic environment - acute
Acute Tox.	5 (oral)	Acute toxicity
Skin Sens.	1B	Skin sensitization
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
Repr.	1B (unborn child)	Reproductive toxicity
Repr.	2 (fertility)	Reproductive toxicity
Acute Tox.	5 (dermal)	Acute toxicity
Repr.	Add. cat. lact.	Reproductive toxicity
Eye Dam./Irrit.	1	Serious eye damage/eye irritation

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2015/03/25

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring

the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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