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Safety Data Sheet
Diethylethanolamine

1. Identification

Product identifier used on the label

Diethylethanolamine

Recommended use of the chemical and restriction on use

* The “Recommended use” identified for this product is provided solely to comply with a US 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(6) H(15) NO
Chemical family:	alkanolamine
Synonyms:	N-(2-Diethylamino)ethanol

2. Hazards Identification

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

Classification of the product

Flam. Liq.	3	Flammable liquids
Acute Tox.	3 (Inhalation - vapour)	Acute toxicity
Acute Tox.	4 (oral)	Acute toxicity
Acute Tox.	3 (dermal)	Acute toxicity
Skin Corr./Irrit.	1B	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure

Aquatic Acute	3	Hazardous to the aquatic environment - acute

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H226	Flammable liquid and vapour.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
H335	May cause respiratory irritation.
H314	Causes severe skin burns and eye damage.
H402	Harmful to aquatic life.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P261	Avoid breathing vapours.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist or vapour.
P260	Do not breathe dust or mist.
P243	Take precautionary measures against static discharge.
P273	Avoid release to the environment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P264	Wash with plenty of water and soap thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P242	Use only non-sparking tools.
P240	Ground/bond container and receiving equipment.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P361 + P364	Remove/Take off immediately all contaminated clothing and wash before reuse.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.
P370 + P378	In case of fire: Use water spray, dry powder or foam for extinction.

Precautionary Statements (Storage):

P403 + P235	Store in a well-ventilated place. Keep cool.
P233	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.
FLAMMABLE LIQUID.
COMBUSTIBLE.
MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
PRODUCT VAPOUR CAN CAUSE IRRITATION AND CORNEAL EDEMA WHICH MAY GIVE RISE TO A TEMPORARY PERCEPTION OF 'BLUE HAZE' OR FOG AROUND LIGHTS.
Prolonged or repeated contact may result in dermatitis.
CORROSIVE TO SKIN.
SENSITIZER.
CAUSES SKIN BURNS.
CAUSES EYE BURNS.
MAY CAUSE LIVER DAMAGE BASED ON ANIMAL DATA.
MAY CAUSE KIDNEY DAMAGE BASED ON ANIMAL DATA.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
INGESTION MAY CAUSE GASTRIC DISTURBANCES.
Use with local exhaust ventilation.
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.
Wear NIOSH-certified chemical goggles.
Wear protective clothing.
Eye wash fountains and safety showers must be easily accessible.
Wear full face shield if splashing hazard exists.

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
100-37-8	>= 99.5 - <= 99.84 %	2-diethylaminoethanol
100-74-3	>= 0.05 - <= 0.2 %	4-ethylmorpholine
764-48-7	>= 0.1 - <= 0.1 %	2-(ethenyloxy)ethanol

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

CAS Number	Content (W/W)	Chemical name
100-37-8	>= 99.5 %	2-diethylaminoethanol
7732-18-5	<= 0.2 %	Water

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

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. Remove 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. 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: Overexposure may cause:, vomiting, nausea

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, carbon dioxide, foam

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
nitrogen oxides, carbon oxides
The substances/groups of substances mentioned can be released in case of fire. Under certain conditions in case of fire other hazardous combustion products may be generated.

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.

Impact Sensitivity:
Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Breathing protection required. Avoid contact with the skin, eyes and clothing.

Environmental precautions
Substance/product is RCRA hazardous due to its properties.

Methods and material for containment and cleaning up
Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling
Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:
Moderate explosion hazard when exposed to heat or flames. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

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

Suitable materials for containers: Carbon steel (Iron), Stainless steel 1.4401, Stainless steel 1.4301 (V2), High density polyethylene (HDPE), glass, Low density polyethylene (LDPE)

Further information on storage conditions: Containers should be stored tightly sealed in a dry place. Avoid extreme heat. Keep away from sources of ignition - No smoking. Keep away from heat.

Storage stability:
Keep container dry.
Protect against moisture.

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

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. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:
Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Store work clothing separately.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	amine-like	
Odour threshold:		Not determined since toxic by inhalation.
Colour:	colourless to slightly yellow	
pH value:	11.5	(100 g/l, 20 °C) Literature data.
setting temperature:	< -70 °C	
Boiling point:	162.36 °C	(1,013 hPa) (other)
Flash point:	51.5 °C	(DIN 51755)
Flammability:	Flammable.	(See user defined text.)
Lower explosion limit:	0.7 %(V)	(39 °C) For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.
Upper explosion limit:	10.1 %(V)	(92.5 °C) For liquids not relevant for classification and labelling.
Autoignition:	320 °C	Literature data.
Vapour pressure:	2 hPa	(22.4 °C) (BASF method)
Density:	0.88 g/cm3	(20 °C)
Relative density:	0.88	(20 °C)
Partitioning coefficient n-octanol/water (log Pow):	0.21	(23 °C) (OECD Guideline 107)
Self-ignition temperature:		Based on its structural properties the product is not classified as self-igniting.
Thermal decomposition:	No decomposition if used as directed.	
Viscosity, dynamic:	4.022 mPa.s	(25 °C) Literature data.
Particle size:		The substance / product is marketed or used in a non solid or granular form.
Solubility in water:		miscible
Molar mass:	117.19 g/mol	

Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.

10. Stability and Reactivity

Reactivity

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
Based on its structural properties the product is not classified as oxidizing.

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

Chemical stability

Possibility of hazardous reactions
The progress of reaction is exothermic. Reacts with oxidizing agents. Reacts with halogenated compounds. Reacts with acids. Reacts with acid chlorides. Incompatible with acid chlorides and acid anhydrides.
Reacts with oxidizing agents.

Conditions to avoid

Incompatible materials
mineral acids, isocyanates

Hazardous decomposition products

Decomposition products:
Hazardous decomposition products: nitrogen oxides

Thermal decomposition:
No decomposition if used as directed.

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: Of moderate toxicity after single ingestion. Of pronounced toxicity after short-term skin contact. Of pronounced toxicity after short-term inhalation.

Information on: Diethylaminoethanol
Assessment of acute toxicity:Ingestion may cause moderate to severe gastrointestinal irritation and ulceration including nausea and vomiting and pain.

Oral
Type of value: LD50
Species: rat (male/female)
Value: approx. 1,320 mg/kg (BASF-Test)

Inhalation
Type of value: LC50
Species: rat (male/female)
Value: approx. 4.6 mg/l (BASF-Test)
Exposure time: 4 h
The vapour was tested.

Dermal
Type of value: LD50
Species: guinea pig (no data)
Value: approx. 885 mg/kg
Literature data.

Assessment other acute effects
Assessment of STOT single:
The available information is not sufficient for evaluation.

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

Skin
Species: rabbit
Result: Corrosive.
Method: OECD Guideline 404

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

Sensitization
Guinea pig maximization test
Species: guinea pig
Result: Non-sensitizing.
Literature data.

Aspiration Hazard
No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: May affect the liver and kidneys as indicated in animal studies.
After repeated exposure the prominent effect is local irritation.

Information on: Diethylaminoethanol

Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in a test with mammals. Genetic toxicity in vitro: OECD Guideline 471 Ames-test with and without metabolic activation negative

Carcinogenicity
Assessment of carcinogenicity: Results from a number of long-term carcinogenity studies and short-term tests are available. Taking into account all of the information, there is no indication that the substance itself is carcinogenic. A long-term carcinogenity study which does not meet the current requirements did not show a carcinogenic effect.

Reproductive toxicity
Assessment of reproduction toxicity: Repeated oral uptake of the substance did not cause damage to the reproductive organs. Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Teratogenicity
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Symptoms of Exposure

Overexposure may cause:, vomiting, nausea

Medical conditions aggravated by overexposure
Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

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) 147 mg/l, Leuciscus idus (DIN 38412 Part 15, static)
Nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample. After neutralization, it is no longer toxic.

Aquatic invertebrates
EC50 (48 h) 83.6 mg/l, Daphnia magna (Directive 79/831/EEC)
Nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.

EC50 (48 h) 165 mg/l, Daphnia magna (OECD Guideline 202, part 1)
The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an neutralized sample.

Aquatic plants
EC50 (72 h) 44 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9)
The details of the toxic effect relate to the nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample.

Chronic toxicity to fish
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates
Study scientifically not justified.

Assessment of terrestrial toxicity
Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms
OECD Guideline 209 aquatic
activated sludge, domestic/EC20 (30 min): > 1,000 mg/l
Nominal concentration.

Persistence and degradability

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

Elimination information

90 - 100 % DOC reduction (22 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic)

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

Bioaccumulative potential

Assessment bioaccumulation potential
Does not significantly accumulate in organisms.

Bioaccumulation potential
Bioconcentration factor: < 6.1 (28 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.
Adsorption to solid soil phase is not expected.

Additional information

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

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

13. Disposal considerations

Waste disposal of substance:

Do not discharge into waterways or sewer systems without proper authorization. Dispose of in a RCRA-licensed facility.

Container disposal:
Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

RCRA: D002

14. Transport Information

Land transport
USDOT

Hazard class:	8
Packing group:	II
ID number:	UN 2686
Hazard label:	8, 3
Proper shipping name:	2-DIETHYLAMINOETHANOL

Sea transport
IMDG

Hazard class:	8
Packing group:	II
ID number:	UN 2686
Hazard label:	8, 3
Marine pollutant:	NO
Proper shipping name:	2-DIETHYLAMINOETHANOL

Air transport
IATA/ICAO

Hazard class:	8
Packing group:	II
ID number:	UN 2686
Hazard label:	8, 3
Proper shipping name:	2-DIETHYLAMINOETHANOL

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

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

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	100-37-8	2-diethylaminoethanol

NFPA Hazard codes:

Health : 3 Fire: 2 Reactivity: 0 Special:

HMIS III rating
Health: 3¤ Flammability: 2 Physical hazard: 0

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

Flam. Liq.	3	Flammable liquids
Aquatic Acute	3	Hazardous to the aquatic environment - acute
Skin Corr./Irrit.	1B	Skin corrosion/irritation
Acute Tox.	3 (dermal)	Acute toxicity
Acute Tox.	4 (oral)	Acute toxicity
Acute Tox.	3 (Inhalation - vapour)	Acute toxicity
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
Eye Dam./Irrit.	1	Serious eye damage/eye irritation

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2015/02/27

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.