



Safety Data Sheet

The Dow Chemical Company

Product Name: AMINOETHYLETHANOLAMINE.

Revision Date: 2011/03/31

Print Date: 01 Apr 2011

The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

Section 1. Identification of the substance/preparation and of the company/undertaking

1.1 Product identifiers

Product Name

AMINOETHYLETHANOLAMINE.

Chemical Name: Aminoethylethanolamine

CAS-No. 111-41-1

EC-No. 203-867-5

REACH Registration Number

01-2119456894-24-0007

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Industrial uses: Chemical intermediate. The product shall not be used without applying strictly controlled conditions.

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
48674 Midland, MI
USA

Customer Information Number:

800-258-2436

SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:

989-636-4400

Local Emergency Contact:

00 31 115 69 4982

Section 2. Hazards Identification

2.1 Classification of the substance or mixture

®(TM)*Trademark

Classification - REGULATION (EC) No 1272/2008

Skin corrosion/irritation	Category 1	H314	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Category 1	H318	Causes serious eye damage.
Skin sensitization	Category 1	H317	May cause an allergic skin reaction.
Reproductive toxicity	Category 1	H360Df	May damage the unborn child. Suspected of damaging fertility.
Specific target organ toxicity - single exposure (Inhalation) (Respiratory tract irritant.)	Category 3	H335	May cause respiratory irritation.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Toxic for reproduction - category 2.	R61	May cause harm to the unborn child.
Toxic for reproduction - category 3.	R62	Possible risk of impaired fertility.
C	R34	Causes burns.
	R43	May cause sensitization by skin contact.

Additional Information

Restricted to professional users.

2.2 Label elements**Labelling - REGULATION (EC) No 1272/2008****Hazard pictograms****Signal Word: Danger****Hazard statements:**

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H360Df May damage the unborn child. Suspected of damaging fertility.

H335 May cause respiratory irritation.

Precautionary Statements:

P271 Use only outdoors or in a well-ventilated area.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

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 victim to fresh air and keep at rest in a position comfortable for breathing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

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

2.3 Other Hazards

No information available.

Section 3. Composition/information on ingredients

3.1 Substance

This product is a substance.

CAS-No. / EC-No. / Index	REACH No.	Amount	Component	Classification: REGULATION (EC) No 1272/2008
CAS-No. 111-41-1 EC-No. 203-867-5	01- 2119456894- 24	> 99.5 %	Aminoethylethanolamine	Repr., 1B, H360Df Skin Corr., 1B, H314 Skin Sens., 1, H317 STOT SE, 3, H335 Eye Dam., 1, H318
CAS-No. 112-24-3 EC-No. 203-950-6 Index 612-059-00-5	—	> 0.1 %	3,6-Diazaoctanethylenediamin; triethylenetetramine	Acute Tox., 4, H312 Skin cor/irr, 1B, H314 Skin Sens., 1, H317 Aquatic Chronic, 3, H412 Eye cor/irr, 1, H318 Acute Tox., 4, H302

CAS-No. / EC-No. / Index	Amount	Component	Classification: 67/548/EEC
CAS-No. 111-41-1 EC-No. 203-867-5	> 99.5 %	Aminoethylethanolamine	Repr. 2: R61; Repr. 3: R62; C: R34; R43
CAS-No. 112-24-3 EC-No. 203-950-6 Index 612-059-00-5	> 0.1 %	3,6-Diazaoctanethylenediamin; triethylenetetramine	Xn: R21; C: R34; R43; R52, R53

For the full text of the H-Statements mentioned in this Section, see Section 16.
See Section 16 for full text of R-phrases.

Section 4. First-aid measures

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Seek medical attention if symptoms occur or irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye Contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation,

preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of immediate medical attention and special treatment needed

Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Section 5. Fire Fighting Measures

5.1 Extinguishing Media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Extinguishing Media to Avoid: Do not use direct water stream. May spread fire.

5.2 Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Section 6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures: Evacuate area. Refer to Section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of

leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Milsorb®. Sand. Do NOT use absorbent materials such as: Cellulose. Sawdust. Collect in suitable and properly labeled containers. Large spills: Dike area to contain spill. Dilute with large quantities of water. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Handling

General Handling: Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Do not swallow. Keep container closed. Avoid breathing vapor. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Store in a dry place. Do not store in: Zinc. Copper. Galvanized containers. Copper alloys. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

7.3 Specific end uses

See the technical data sheet on this product for further information.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

Exposure Limits

Component	List	Type	Value
Aminoethylethanolamine	Dow IHG	TWA	0.05 mg/m3 SKIN*, D-SEN
3,6-Diazaoctanethylene-diamin; triethylenetetramine	AIHA WEEL	TWA	6 mg/m3 1 ppm SKIN

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

*Skin notation based upon the possibility that the vapor limit alone may not be protective for pregnant women. There is the potential for absorption of Aminoethylethanolamine from the skin at levels that may seriously affect the fetus.

A D-SEN notation following the exposure guideline refers to the potential to produce dermal sensitization, as confirmed by human or animal data.

8.2 Exposure controls

Personal Protection

Eye/Face Protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C)

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical State	Liquid.
Color	Colorless
Odor	Slightly ammoniacal
Odor Threshold	No test data available
pH	No test data available
Melting Point	Not applicable to liquids
Freezing Point	-45 °C <i>Literature</i>
Boiling Point (760 mmHg)	242.8 °C <i>Literature</i> .
Flash Point - Closed Cup	127 °C <i>ASTM D93</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Vapor Pressure	< 0.01 kPa @ 20 °C <i>Literature</i>
Vapor Density (air = 1)	3.6 <i>Literature</i>

Specific Gravity (H₂O = 1)	1.030 20 °C/20 °C <i>Literature</i>
Solubility in water (by weight)	100 % <i>Literature</i>
Partition coefficient, n-octanol/water (log Pow)	-1.46 <i>Measured</i>
Autoignition Temperature	365 °C <i>Literature</i>
Decomposition Temperature	No test data available
Kinematic Viscosity	98 mm ² /s @ 25 °C <i>Literature</i>
Explosive properties	no data available
Oxidizing properties	no data available

9.2 Other information

Liquid Density	1.027 g/ml @ 20 °C <i>Literature</i>
Molecular Weight	104.15 g/mol <i>Literature</i>
Henry's Law Constant (H)	1.11E-08 Pa*m ³ /mole.; 25 °C Estimated.

Section 10. Stability and Reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under recommended storage conditions. See Storage, Section 7. Hygroscopic.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid moisture.

10.5 Incompatible Materials: Avoid contact with: Nitrites. Strong acids. Strong oxidizers. Product may potentially react with various halogenated organic solvents, resulting in temperature and/or pressure increases. Corrosive when wet. Heating above 60°C in the presence of aluminum can result in corrosion and generation of flammable hydrogen gas. Avoid unintended contact with: Halogenated hydrocarbons.

10.6 Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.

Section 11. Toxicological Information

11.1 Information on toxicological effects

Acute Toxicity

Ingestion

Avoid all oral contact. Low toxicity if swallowed. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.

LD50, Rat 2,150 mg/kg

Aspiration hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Dermal

Avoid all skin contact. Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rat > 2,000 mg/kg

Inhalation

At room temperature, exposure to vapor is minimal due to low volatility; vapor from heated material may cause respiratory irritation. Based on the available data, narcotic effects were not observed. The LC50 has not been determined.

Eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin corrosion/irritation

Avoid all skin contact. Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage. May cause more severe response on covered skin (under clothing, gloves).

Sensitization

Skin

Skin contact may cause an allergic skin reaction. Individuals who have had an allergic skin reaction to similar materials may have an allergic skin reaction to this product. The similar material(s) is/are: Triethylenetetramine (TETA). Has caused allergic skin reactions when tested in guinea pigs. Has demonstrated the potential for contact allergy in mice.

Respiratory

No specific, relevant data available for assessment.

Repeated Dose Toxicity

Avoid all oral and dermal contact. In animals, effects have been reported on the following organs: Gastrointestinal tract. Kidney. Repeated skin application to laboratory animals did not produce systemic toxicity.

Chronic Toxicity and Carcinogenicity

No relevant data found.

Developmental Toxicity

Avoid all oral and dermal contact. Has caused birth defects in laboratory animals.

Reproductive Toxicity

Avoid all oral and dermal contact. Has been toxic to the fetus in laboratory animal tests. In animal studies, has been shown to interfere with fertility.

Genetic Toxicology

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Section 12. Ecological Information

12.1 Toxicity

Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (*Pimephales promelas*), 96 h: 640 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static, 48 h, immobilization: 22 mg/l

Aquatic Plant Toxicity

EbC50, *Scenedesmus subspicatus* (new name: *Desmodesmus subspicatus*), biomass growth inhibition, 72 h: 210 mg/l

ErC50, *Scenedesmus subspicatus* (new name: *Desmodesmus subspicatus*), Growth rate inhibition, 72 h: 353.6 mg/l

12.2 Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
> 97 %	28 d	OECD 301F Test	pass

12.3 Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): -1.46 Measured

Bioconcentration Factor (BCF): < 3.7; common carp (Cyprinus carpio); Measured

12.4 Mobility in soil

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50)., Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient, soil organic carbon/water (Koc): 3.5 Estimated.

Henry's Law Constant (H): 1.11E-08 Pa*m³/mole.; 25 °C Estimated.

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

No relevant data found.

Section 13. Disposal Considerations

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 91/689/EEC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

Section 14. Transport Information

ROAD & RAIL

Proper Shipping Name: Amines, liquid, corrosive, n.o.s. (aminoethylethanolamine)

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG II

Classification: C7

Hazard identification No: 80

Tremcard Number: 80GC7-II

Environmental Hazard: No

OCEAN

Proper Shipping Name: Amines, liquid, corrosive, n.o.s. (aminoethylethanolamine)

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG II

EMS Number: F-A,S-B

Marine pollutant.: No

AIR

Proper Shipping Name: Amines, liquid, corrosive, n.o.s. (aminoethylethanolamine)

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG II

Cargo Packing Instruction: 855

Passenger Packing Instruction: 851

Environmental Hazard: No

INLAND WATERWAYS

Proper Shipping Name: Amines, liquid, corrosive, n.o.s. (aminoethylethanolamine)

Hazard Class: 8 **ID Number:** UN2735 **Packing Group:** PG II

Classification: C7

Hazard identification No: 80

Tremcard Number: 80GC7-II

Environmental Hazard: No

Section 15. Regulatory Information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****European Inventory of Existing Commercial Chemical Substances (EINECS)**

This product is on the EINECS inventory.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

Section 16. Other Information**Hazard statement in the composition section**

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H412	Harmful to aquatic life with long lasting effects.

Risk-phrases in the Composition section

R21	Harmful in contact with skin.
R34	Causes burns.
R43	May cause sensitization by skin contact.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R61	May cause harm to the unborn child.
R62	Possible risk of impaired fertility.

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact.

Revision

Identification Number: 467 / 1001 / Issue Date 2011/03/31 / Version: 6.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the

data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.