

# SAFETY DATA SHEET



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## MONOETHANOLAMINE

Version 1.1      Revision Date: 11/18/2015      SDS Number: 400001020142      Date of last issue: 11/13/2015  
Date of first issue: 11/13/2015

### SECTION 1. IDENTIFICATION

Product name : MONOETHANOLAMINE

#### Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC  
Address : P.O. Box 4980  
The Woodlands,  
TX 77387  
United States of America  
Telephone : TechInfo: (281) 719-7780  
E-mail address of person responsible for the SDS : MSDS@huntsman.com  
Emergency telephone : Chemtrec: (800) 424-9300 or (703) 527-3887

#### Recommended use of the chemical and restrictions on use

Recommended use : Intermediate

### SECTION 2. HAZARDS IDENTIFICATION

#### GHS Classification

Acute toxicity (Oral) : Category 4  
Acute toxicity (Inhalation) : Category 4  
Acute toxicity (Dermal) : Category 4  
Skin corrosion : Category 1  
Serious eye damage : Category 1  
Specific target organ systemic toxicity - single exposure : Category 3 (Respiratory system)  
Acute aquatic toxicity : Category 3  
Chronic aquatic toxicity : Category 3

#### GHS Label element

Hazard pictograms :

Signal Word : Danger

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**Hazard Statements**                                : H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled.  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.  
H335 May cause respiratory irritation.  
H412 Harmful to aquatic life with long lasting effects.

**Precautionary Statements**                    : **Prevention:**  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.  
P363 Wash contaminated clothing before reuse.  
**Storage:**  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture                                : Substance

### Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Ethanol, 2-amino-	141-43-5	95 - 100

## SECTION 4. FIRST AID MEASURES

**General advice**                                        : Move out of dangerous area.  
Consult a physician.

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- Show this material safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.
- If inhaled : If unconscious place in recovery position and seek medical advice.  
If symptoms persist, call a physician.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.  
If on skin, rinse well with water.  
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Continue rinsing eyes during transport to hospital.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.  
Keep respiratory tract clear.  
Do NOT induce vomiting.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.  
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : No hazardous combustion products are known
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Evacuate personnel to safe areas.  
Ensure adequate ventilation.  
In case of inadequate ventilation wear respiratory protection.

Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Neutralize with acid.  
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.

**SECTION 7. HANDLING AND STORAGE**

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : Avoid formation of aerosol.  
Do not breathe vapors/dust.  
Avoid exposure - obtain special instructions before use.  
Avoid contact with skin and eyes.  
For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
Provide sufficient air exchange and/or exhaust in work rooms.  
To avoid spills during handling keep bottle on a metal tray.  
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Observe label precautions.  
Electrical installations / working materials must comply with the technological safety standards.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Ingredients with workplace control parameters**

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Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethanol, 2-amino-	141-43-5	TWA	3 ppm	ACGIH
		STEL	6 ppm	ACGIH
		TWA	3 ppm 6 mg/m3	OSHA Z-1
		STEL	6 ppm 15 mg/m3	OSHA PEL
		TWA	3 ppm 8 mg/m3	OSHA PEL

**Personal protective equipment**

- Respiratory protection** : In the case of vapor formation use a respirator with an approved filter.  
 Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.  
 Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hand protection**  
 Remarks : Polyvinyl alcohol or nitrile- butyl-rubber gloves  
 The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it.  
 Before removing gloves clean them with soap and water.
- Eye protection** : Eye wash bottle with pure water  
 Tightly fitting safety goggles.  
 Wear face-shield and protective suit for abnormal processing problems.  
 Ensure that eyewash stations and safety showers are close to the workstation location.
- Skin and body protection** : impervious clothing  
 Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures** : When using do not eat or drink.  
 When using do not smoke.  
 Wash hands before breaks and at the end of workday.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

- Appearance** : liquid
- Color** : colorless
- Odor** : amine-like
- Odor Threshold** : > 4.2776 ppm

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pH : 12.1, Concentration: 100 g/l (20 °C)

Melting point : 9.96 - 10.6 °C

Boiling point : 167 - 172 °C

Flash point : 95.5 °C  
Method: Pensky-Martens closed cup, closed cup

Evaporation rate : No data is available on the product itself.

Flammability (solid, gas) : No data is available on the product itself.

Upper explosion limit : 17 %(V)

Lower explosion limit : 5 %(V)

Vapor pressure : 0.58 hPa (26.85 °C)

Relative vapor density : 2.1

Relative density : 1.02

Density : 1.02 g/cm<sup>3</sup> (20 °C)

Solubility(ies)  
Water solubility : completely miscible (20 °C)

Solubility in other solvents : Solvent: Methanol  
Description: soluble

Partition coefficient: n-octanol/water : log Pow: -1.91 (25 °C)  
Method: OECD Test Guideline 107

Autoignition temperature : 410 °C

Thermal decomposition : No data is available on the product itself.

Viscosity  
Viscosity, dynamic : 18.95 mPa.s (25 °C)

Viscosity, kinematic : 23.6 mm<sup>2</sup>/s (20 °C)

Oxidizing properties : None.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Molecular weight : 61.08 g/mol

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : No dangerous reaction known under conditions of normal use.  
Chemical stability : Stable under normal conditions.  
Possibility of hazardous reactions : Exothermic reaction with acids.  
Stable under normal conditions.

Halogenated hydrocarbon  
Reacts with the following substances:  
Strong oxidizing agents  
Strong acids

Conditions to avoid : No data available

Hazardous decomposition products : Carbon monoxide  
Carbon dioxide (CO<sub>2</sub>)  
Burning produces obnoxious and toxic fumes.  
Nitrogen oxides (NO<sub>x</sub>)

**SECTION 11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure : No data is available on the product itself.

**Acute toxicity**

Acute oral toxicity - Product : Acute toxicity estimate : 1,090 mg/kg  
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate: 11.01 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor  
Method: Calculation method

Acute dermal toxicity - Product : LD50 (Rabbit, male and female): 2,504 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The component/mixture is moderately toxic after single contact with skin.

Acute toxicity (other routes of administration) : No data available

**Skin corrosion/irritation****Product:**

Remarks: Extremely corrosive and destructive to tissue.

**Serious eye damage/eye irritation****Product:**

Remarks: May cause irreversible eye damage.

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**Respiratory or skin sensitization****Product:**

Remarks: No data available

Assessment: No data available

**Germ cell mutagenicity****Ingredients:**

Ethanol, 2-amino-: Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

Metabolic activation: negative  
Result: negative

**Ingredients:**

Ethanol, 2-amino-: Genotoxicity in vivo : Application Route: Oral  
Exposure time: 24 h  
Dose: 375 - 1500 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

**Carcinogenicity**

No data available

Carcinogenicity - Assessment : No data available

**IARC**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**NTP**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity****Ingredients:**

Ethanol, 2-amino-: Effects on fertility : Species: Rat, male and female



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Application Route: Oral  
Target Organs: Reproductive organs  
Method: OECD Test Guideline 416

**Ingredients:**

Ethanol, 2-amino-:

Effects on fetal development : Species: Rat  
Application Route: Oral  
General Toxicity Maternal: NOAEL (No observed adverse effect level): 120 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects.

Species: Rat  
Application Route: Dermal  
General Toxicity Maternal: NOAEL (No observed adverse effect level): 75 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects.

Reproductive toxicity - Assessment : No data available

**STOT-single exposure****Ingredients:**

Ethanol, 2-amino-:

Routes of exposure: Inhalation  
Target Organs: Respiratory Tract  
Assessment: May cause respiratory irritation.

**STOT-repeated exposure**

No data available

**Repeated dose toxicity****Ingredients:**

Ethanol, 2-amino-:

Species: Rat, male and female  
NOEC: 300 mg/m<sup>3</sup>  
Application Route: Ingestion  
Test atmosphere: vapor  
Exposure time: 672 h  
Number of exposures: 7 d  
Method: OECD Test Guideline 412

Repeated dose toxicity - Assessment : No data available

**Aspiration toxicity**

No data available

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**Experience with human exposure**

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

**Toxicology, Metabolism, Distribution**

No data available

**Neurological effects**

No data available

**Further information****Product:**

Remarks: No data available

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Ingredients:**

Ethanol, 2-amino-:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 349 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water

**Ingredients:**

Ethanol, 2-amino-:

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 65 mg/l  
aquatic invertebrates : Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.2.

**Ingredients:**

Ethanol, 2-amino-:

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 2.5 mg/l  
Exposure time: 72 h  
Test substance: Fresh water

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Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : No data available

**Ingredients:**

Ethanol, 2-amino-:  
Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Orange-red killifish)): 1.2 mg/l  
Exposure time: 30 d  
Test substance: Fresh water  
Method: OECD Test Guideline 210

**Ingredients:**

Ethanol, 2-amino-:  
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.85 mg/l  
Exposure time: 21 d  
Test substance: Fresh water  
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : No data available

Toxicity to bacteria : No data available

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment

**Ingredients:**Ethanol, 2-amino-:  
Acute aquatic toxicity : Harmful to aquatic life.

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information:  
No data available**Persistence and degradability****Ingredients:**Ethanol, 2-amino-:  
Biodegradability : Inoculum: activated sludge

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Concentration: 20 mg/l  
 Result: Readily biodegradable.  
 Biodegradation: > 90 %  
 Exposure time: 21 d  
 Method: OECD Test Guideline 301A

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

**Ingredients:**

Ethanol, 2-amino-: Photodegradation : Test Type: Air  
 Rate constant: 35.844  
 Degradation (direct photolysis): 50 %

Impact on Sewage Treatment : No data available

**Bioaccumulative potential**

Bioaccumulation : No data available

Partition coefficient: n-octanol/water - Product : log Pow: -1.91 (25 °C)  
 Method: OECD Test Guideline 107

**Mobility in soil**

Mobility : No data available

**Ingredients:**

Ethanol, 2-amino-: Distribution among environmental compartments : Koc: 1.167.  
 Stability in soil : No data available

**Other adverse effects**

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Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

**Hazardous to the ozone layer**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Harmful to aquatic life.  
Harmful to aquatic life with long lasting effects.

Global warming potential (GWP) : No data available

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

**SECTION 14. TRANSPORT INFORMATION****International Regulation****IATA**

UN/ID No. : UN 2491  
Proper shipping name : Ethanolamine  
Class : 8

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Packing group : III  
 Labels : Corrosive  
 Packing instruction (cargo aircraft) : 856  
 Packing instruction (passenger aircraft) : 852

**IMDG**

UN number : UN 2491  
 Proper shipping name : ETHANOLAMINE  
 Class : 8  
 Packing group : III  
 Labels : 8  
 EmS Code : F-A, S-B  
 Marine pollutant : no

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation****DOT Classification**

UN/ID/NA number : UN 2491  
 Proper shipping name : ETHANOLAMINE  
 Class : 8  
 Packing group : III  
 Labels : CORROSIVE  
 ERG Code : 153  
 Marine pollutant : no

**SECTION 15. REGULATORY INFORMATION**

**TSCA - 5(a) Significant New Use Rule List of Chemicals** : Not relevant

**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
DIETHANOLAMINE (DELA)	111-42-2	100	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 311/312 Hazards** : Acute Health Hazard

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

**California Prop 65**

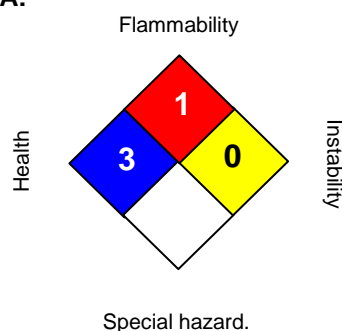
WARNING! This product contains a chemical known in the State of California to cause cancer.

2,2'-iminodiethanol

111-42-2

**The ingredients of this product are reported in the following inventories:**

CH INV	:	The mixture contains substances listed on the Swiss Inventory
TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL.
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

**SECTION 16. OTHER INFORMATION****Further information****NFPA:****HMIS III:**

<b>HEALTH</b>	<b>3*</b>
<b>FLAMMABILITY</b>	<b>1</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

0 = not significant, 1 = Slight,

2 = Moderate, 3 = High

4 = Extreme, \* = Chronic

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While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE. THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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