

## 1. Identification

<b>Product identifier</b>	<b>DIETHANOLAMINE, REAGENT (ACS)</b>	
<b>Other means of identification</b>		
<b>Product code</b>	910	
<b>CAS number</b>	111-42-2	
<b>Synonyms</b>	BIS(2-HYDROXYETHYL)AMINE	
<b>Recommended use</b>	professional, scientific and technical activities: other professional, scientific and technical activities, manufacture of other chemical products	
<b>Recommended restrictions</b>	None known.	
<b>Manufacturer/Importer/Supplier/Distributor information</b>		
<b>Manufacturer</b>		
<b>Company name</b>	GFS Chemicals, Inc.	
<b>Address</b>	800 Kaderly Drive Columbus, OH 43228 United States	
<b>Telephone</b>	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
<b>Website</b>	www.gfschemicals.com	
<b>E-mail</b>	service@gfschemicals.com	
<b>Emergency phone number</b>	Emergency Assistance	Chemtrec 800-424-9300

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Carcinogenicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Danger
<b>Hazard statement</b>	Harmful if swallowed. Causes skin irritation. Causes serious eye damage. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.
<b>Precautionary statement</b>	
<b>Prevention</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
<b>Response</b>	Rinse mouth. IF ON SKIN: Wash with plenty of water. 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. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

<b>Storage</b>	Store locked up. Store contents under inert gas.
<b>Disposal</b>	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.
<b>Supplemental information</b>	None.

### 3. Composition/information on ingredients

#### Substances

Chemical name	Common name and synonyms	CAS number	%
DIETHANOLAMINE	BIS(2-HYDROXYETHYL)AMINE	111-42-2	100

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
<b>Ingestion</b>	Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.
<b>Most important symptoms/effects, acute and delayed</b>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Foam. Powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	None known.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
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**Methods and materials for containment and cleaning up**

Prevent product from entering drains. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Should not be released into the environment. Prevent entry into waterways, sewers, basements or confined areas.

Large Spills: Stop leak if you can do so without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Clean contaminated surface thoroughly. Clean up in accordance with all applicable regulations.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). After removal flush contaminated area thoroughly with water.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

**Environmental precautions**

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

**7. Handling and storage****Precautions for safe handling**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/vapors. Do not get this material in contact with eyes. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Material should be stored under an inert atmosphere.

**8. Exposure controls/personal protection****Occupational exposure limits**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

**US. ACGIH Threshold Limit Values**

Material	Type	Value	Form
DIETHANOLAMINE (CAS 111-42-2)	TWA	1 mg/m3	Inhalable fraction and vapor.

**US. NIOSH: Pocket Guide to Chemical Hazards**

Material	Type	Value
DIETHANOLAMINE (CAS 111-42-2)	TWA	15 mg/m3 3 ppm

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Exposure guidelines****US - California OELs: Skin designation**

DIETHANOLAMINE (CAS 111-42-2) Can be absorbed through the skin.

**US ACGIH Threshold Limit Values: Skin designation**

DIETHANOLAMINE (CAS 111-42-2) Can be absorbed through the skin.

**Appropriate engineering controls**

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Skin protection**

**Hand protection** Wear appropriate chemical resistant gloves.

**Other** Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

**Respiratory protection** If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided. Chemical respirator with organic vapor cartridge.

<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

<b>Appearance</b>	Viscous.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	slightly ammoniacal.
<b>Odor threshold</b>	Not available.
<b>pH</b>	11 0.1 N Aqueous solution
<b>Melting point/freezing point</b>	82.4 °F (28 °C)
<b>Initial boiling point and boiling range</b>	515.84 °F (268.8 °C) 101.325 kPa
<b>Flash point</b>	273.2 °F (134.0 °C) Open Cup
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	0.00004 kPa (77 °F (25 °C))
<b>Vapor density</b>	3.65
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	950 g/l
<b>Partition coefficient (n-octanol/water)</b>	-1.43
<b>Auto-ignition temperature</b>	1224 °F (662.22 °C)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Density</b>	1.10 g/cm <sup>3</sup> estimated at 20 °C
<b>Dynamic viscosity</b>	53.85 mPa.s (140 °F (60 °C))
<b>Explosive properties</b>	Not explosive.
<b>Flammability class</b>	Combustible IIIB estimated
<b>Flash point class</b>	Combustible IIIB
<b>Kinematic viscosity</b>	49.11 mm <sup>2</sup> /s estimated
<b>Molecular formula</b>	C <sub>4</sub> H <sub>11</sub> N-O <sub>2</sub>
<b>Molecular weight</b>	105.14 g/mol
<b>Oxidizing properties</b>	Not oxidizing.
<b>Specific gravity</b>	1.1 at 20 °C

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

<b>Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong acids. Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Upon decomposition, this product may yield oxides of nitrogen and ammonia, carbon dioxide, carbon monoxide and other low molecular weight hydrocarbons.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Prolonged inhalation may be harmful.
<b>Skin contact</b>	Causes skin irritation.
<b>Eye contact</b>	Causes serious eye damage.
<b>Ingestion</b>	Harmful if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics** Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing. Skin irritation. May cause redness and pain.

### Information on toxicological effects

**Acute toxicity** Harmful if swallowed.

Product	Species	Test Results
DIETHANOLAMINE (CAS 111-42-2)		
<b>Acute</b>		
<b>Oral</b>		
LD50	Rat	1820 mg/kg 710 mg/kg

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes serious eye damage.

### Respiratory or skin sensitization

<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** Suspected of causing cancer.

### IARC Monographs. Overall Evaluation of Carcinogenicity

DIETHANOLAMINE (CAS 111-42-2) 2B Possibly carcinogenic to humans.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

### US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard** Not an aspiration hazard.

**Chronic effects** Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure. Prolonged exposure may cause chronic effects.

## 12. Ecological information

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

Product	Species	Test Results
DIETHANOLAMINE (CAS 111-42-2)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Ceriodaphnia dubia) 61.8 - 86.04 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 100 mg/l, 96 hours

**Persistence and degradability** No data is available on the degradability of this substance.

### Bioaccumulative potential

**Partition coefficient n-octanol / water (log Kow)**

-1.43

<b>Mobility in soil</b>	No data available.
<b>Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

**13. Disposal considerations**

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**14. Transport information****DOT**

<b>UN number</b>	UN2735
<b>UN proper shipping name</b>	Amines, liquid, corrosive, n.o.s, (DIETHANOLAMINE RQ = 100 LBS)
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	8
<b>Packing group</b>	III
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	IB3, T7, TP1, TP28
<b>Packaging exceptions</b>	154
<b>Packaging non bulk</b>	203
<b>Packaging bulk</b>	241

**IATA**

<b>UN number</b>	UN2735
<b>UN proper shipping name</b>	Amines, liquid, corrosive, n.o.s. (DIETHANOLAMINE)
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	No.
<b>ERG Code</b>	8L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed with restrictions.
<b>Cargo aircraft only</b>	Allowed with restrictions.

**IMDG**

<b>UN number</b>	UN2735
<b>UN proper shipping name</b>	AMINES, LIQUID, CORROSIVE, N.O.S. (DIETHANOLAMINE)
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-A, S-B
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

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

Not established.

DOT



IATA; IMDG



## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**Toxic Substances Control Act (TSCA)** This substance is on the TSCA 8(b) inventory and is designated "active".

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

DIETHANOLAMINE (CAS 111-42-2) Listed.

**SARA 304 Emergency release notification**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)**

Not regulated.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical** Yes

**Classified hazard categories** Acute toxicity (any route of exposure)  
Skin corrosion or irritation  
Serious eye damage or eye irritation  
Carcinogenicity  
Specific target organ toxicity (single or repeated exposure)

**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
DIETHANOLAMINE	111-42-2	100

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

DIETHANOLAMINE (CAS 111-42-2)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

## US state regulations

### California Proposition 65



**WARNING:** This product can expose you to DIETHANOLAMINE, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### California Proposition 65 - CRT: Listed date/Carcinogenic substance

DIETHANOLAMINE (CAS 111-42-2)

Listed: June 22, 2012

### US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

DIETHANOLAMINE (CAS 111-42-2)

## International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

**Issue date** October-17-2013

**Revision date** March-25-2019

**Version #** 04

**Disclaimer** GFS Chemicals, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Revision information** This document has undergone significant changes and should be reviewed in its entirety.