



# ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%)

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 20/05/2011

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Supersedes: 20/05/2011

Version: 2.0

DLM-2299

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Substance  
Substance name : ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%)  
EC-No. : 206-369-6 (Unlabeled)  
CAS-No. : 34334-71-9  
Product code : DLM-2299  
Formula : H<sub>2</sub>NCD<sub>2</sub>CD<sub>2</sub>NH<sub>2</sub>·2HCl  
Synonyms : 1,2-Diaminoethanedihydrochloride

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

#### 1.2.1. Relevant identified uses

Main use category : Professional use  
Industrial/Professional use spec : For professional use only

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.  
50 Frontage Road  
Andover, MA 01810  
USA

USA: 1-800-322-1174 Int: 1-978-749-8000  
[cilsales@isotope.com](mailto:cilsales@isotope.com) [www.isotope.com](http://www.isotope.com)

### Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)  
International: 1-703-741-5970 (24 hours)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302  
Skin Irrit. 2 H315  
Eye Irrit. 2 H319  
Resp. Sens. 1 H334  
Skin Sens. 1 H317  
STOT SE 3 H335

Full text of hazard classes and H-statements : see section 16

#### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R22  
R42  
Xi; R36/37/38  
R43

Full text of R-phrases: see section 16

#### GHS-US classification

Acute Tox. 4 (Oral) H302  
Skin Irrit. 2 H315  
Eye Irrit. 2 H319  
Resp. Sens. 1 H334  
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Full text of H statements : see section 16

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### Adverse physicochemical, human health and environmental effects

No additional information available

## 2.2. Label elements

### Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazard statements (CLP)

: H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled  
H335 - May cause respiratory irritation

Precautionary statements (CLP)

: P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing should not be allowed out of the workplace.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P284 - [In case of inadequate ventilation] wear respiratory protection.  
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.

### GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H302 - Harmful if swallowed  
H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled  
H335 - May cause respiratory irritation

Precautionary statements (GHS-US)

: P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P272 - Contaminated work clothing must not be allowed out of the workplace  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P284 - [In case of inadequate ventilation] wear respiratory protection.  
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell  
P302+P352 - If on skin: Wash with plenty of water  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P304+P341 - If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P312 - Call a poison center or doctor if you feel unwell  
P321 - Specific treatment (see supplemental first aid instruction on this label)  
P330 - Rinse mouth.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P342+P311 - If experiencing respiratory symptoms: Call a poison center or doctor  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P363 - Wash contaminated clothing before reuse.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P405 - Store locked up.

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P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%)	(CAS-No.) 34334-71-9 (EC-No.) 206-369-6 (Unlabeled) (EC Index-No.)	100	Xn; R22 R42 Xi; R36/37/38 R43

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%)	(CAS-No.) 34334-71-9 (EC-No.) 206-369-6 (Unlabeled) (EC Index-No.)	100	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%) (Main constituent)	(CAS-No.) 34334-71-9	100	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335

Full text of H-phrases: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible). Evacuate danger area.
First-aid measures after inhalation	: When symptoms occur: go into open air and ventilate suspected area. If not breathing give artificial respiration. Get medical advice/attention.
First-aid measures after skin contact	: Wash with plenty of soap and water. and soap. Get immediate medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation. May cause allergic skin reaction.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Harmful if swallowed.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO<sub>2</sub>).

### 5.2. Special hazards arising from the substance or mixture

No additional information available

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### 5.3. Advice for firefighters

- Firefighting instructions : Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Emergency procedures : Use personal protective equipment as required. Avoid breathing vapors, mist, gas. Avoid dust formation. Ensure adequate air ventilation. Evacuate danger area. Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

- For containment : Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.
- Methods for cleaning up : This material and its container must be disposed of in a safe way, and as per local legislation.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Provide adequate ventilation to minimize dust and/or vapor concentrations.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Store in a well-ventilated place. Keep container tightly closed.
- Storage conditions : Store at room temperature away from light and moisture.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

- Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
- Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



- Materials for protective clothing : Wear suitable protective clothing and gloves.
- Hand protection : Wear suitable protective clothing and gloves.
- Eye protection : Wear eye protection. Chemical goggles or face shield with safety glasses.
- Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.
- Respiratory protection : In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.
- Environmental exposure controls : Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

- Physical state : Solid
- Appearance : Crystalline

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Molecular mass	: 137.04 g/mol (Labeled)
Color	: White
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: > 300 °C (> 572 °F) - lit
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable if stored under recommended conditions.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

No additional information available

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Carbon oxides, Hydrogen chloride gas, Nitrogen oxides (NOx).

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%) (34334-71-9)	
LD50 oral	Mouse - 1620 mg/kg
LD50 dermal rabbit	> 6400 mg/kg
ATE CLP (oral)	500.000 mg/kg body weight

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

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Reproductive toxicity	: Reproductive toxicity Reproductive toxicity - Rat - Oral Effects on Fertility: Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g. stunted fetus). Developmental toxicity - Rat - Oral Effects on Embryo or Fetus: Fetotoxicity (except death, e.g. stunted fetus).
Specific target organ toxicity – single exposure	: Inhalation - May cause respiratory irritation
Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Asthma. This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
Symptoms/effects after inhalation	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation. May cause allergic skin reaction.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: Harmful if swallowed.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

#### ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%) (34334-71-9)

LC50 fish 1	> 100 mg/l Pimephales promelas (fathead minnow) - 96 h
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### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
Product/Packaging disposal recommendations	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Ecology - waste materials	: Dispose of as unused product.

## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

Not applicable

### 14.2. UN proper shipping name

Not applicable

### 14.3. Additional information

Other information : No supplementary information available.

### Overland transport

No additional information available

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### Transport by sea

No additional information available

### Air transport

No additional information available

### 14.4. Environmental hazards

Other information : No supplementary information available.

### 14.5. Special precautions for user

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

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%) (34334-71-9)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

### 15.2. International regulations

#### CANADA

ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%) (34334-71-9)
Listed on the Canadian DSL (Domestic Substances List)

#### 15.2.1. National regulations

No additional information available

### 15.3. US State regulations

ETHYLENEDIAMINE:2HCL (ETHYLENE-D4, 98%)(34334-71-9)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

## SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Resp. Sens. 1	Respiratory sensitization, Category 1
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization, Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation

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H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
R22	Harmful if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin
R42	May cause sensitization by inhalation
R43	May cause sensitization by skin contact
Xi	Irritant
Xn	Harmful

NFPA health hazard

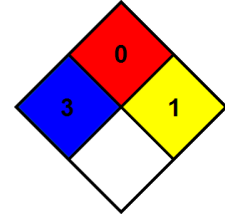
: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



### Hazard Rating

Health

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability

: 0 Minimal Hazard

Physical

: 1 Slight Hazard

CIL Substance SDS

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