

# Safety Data Sheet



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

Revision Date: 10/08/2021  
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### 1.1 Production identifiers

Product name : DIETHYLENETRIAMINE  
Brand : CJ Chemicals LLC  
CAS-No. : 111-40-0

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

Identified uses : Laboratory chemicals, synthesis of substances

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

Company : CJ Chemicals LLC  
3469 E Grand River Rd #112  
Howell, MI 48843  
United States

Telephone : +1 (888) 274-1044

### 1.4 Emergency Telephone

Emergency Phone # : 1-800-424-9300 CHEMTREC (USA)  
1-703-527-3887 CHEMTREC (international) 24 hours/day; 7 days/week

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 2), H330  
Acute toxicity, Dermal (Category 4), H312  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318  
Skin sensitization (Category 1), H317  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

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

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302 + H312

Harmful if swallowed or in contact with skin.

H314

Causes severe skin burns and eye damage.

H317

May cause an allergic skin reaction.

H330

Fatal if inhaled.

H335

May cause respiratory irritation.

Precautionary statement(s)

P260

Do not breathe dust/ fume/ gas/ mist/ vapors/ 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.

P272

Contaminated work clothing must not be allowed out of the workplace.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P284

Wear respiratory protection.

P301 + P312 + P330

IF SWALLOWED: Call a POISON CENTER/ doctor 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/ doctor.

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/ doctor.

P333 + P313

If skin irritation or rash occurs: Get medical advice/ attention.

P363

Wash contaminated clothing before reuse.

P403 + P233

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

P405

Store locked up.

P501

Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Rapidly absorbed through skin.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms : 2,2'-Diaminodiethylamine  
Bis(2-aminoethyl)amine  
2,2'-Iminodiethylamine

Formula : C<sub>4</sub>H<sub>13</sub>N<sub>3</sub>

Molecular weight : 103.17 g/mol

CAS-No. : 111-40-0

EC-No. : 203-865-4

Index-No. : 612-058-00-X

Component	Classification	Concentration
<b>2,2'-iminodiethylamine</b>		
	Acute Tox. 4; Acute Tox. 2; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; STOT SE 3; H302, H330, H312, H314, H318, H317, H335	<= 100 %

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

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aider needs to protect himself. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Carbon dioxide (CO<sub>2</sub>) Foam Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

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

Nature of decomposition products not known.

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.  
Development of hazardous combustion gases or vapours possible in the event of fire.

### **5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### **5.4 Further information**

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6: Accidental release measures**

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

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

### **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

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

#### **Storage conditions**

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas.

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
2,2'-iminodiethylamine	111-40-0	TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Danger of cutaneous absorption		
		TWA	1 ppm 4 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		PEL	1 ppm 4 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

### 8.2 Exposure controls

#### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

##### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Chloroprene

Minimum layer thickness: 0.65 mm

Break through time: 480 min

Material tested:KCL 720 Camapren®

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Latex gloves

Minimum layer thickness: 0.6 mm

Break through time: 60 min

Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

##### Body Protection

protective clothing

### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

### **Control of environmental exposure**

Do not let product enter drains.

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## **SECTION 9: Physical and chemical properties**

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

- |   |  |
|---|--|
| a) Appearance                                   | Form: clear, liquid<br>Color: colorless                          |
| b) Odor   | Ammonia odor   |
| c) Odor Threshold                               | No data available  |
| d) pH   | No data available  |
| e) Melting point/freezing point                 | Melting point/range: -35 °C (-31 °F) - lit.                      |
| f) Initial boiling point and boiling range      | 199 - 209 °C 390 - 408 °F - lit.                                 |
| g) Flash point                                  | 94 °C (201 °F) - closed cup                                      |
| h) Evaporation rate                             | No data available  |
| i) Flammability (solid, gas)                    | No data available  |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 6.7 %(V)<br>Lower explosion limit: 2 %(V) |
| k) Vapor pressure                               | 0.2 hPa at 20 °C (68 °F)   |
| l) Vapor density                                | 3.56 - (Air = 1.0)   |
| m) Relative density                             | 0.955 g/cm <sup>3</sup> at 25 °C (77 °F)                         |
| n) Water solubility                             | miscible in all proportions                                      |
| o) Partition coefficient: n-octanol/water       | No data available  |
| p) Autoignition temperature                     | 358 °C (676 °F) at 1,013 hPa                                     |
| q) Decomposition temperature                    | No data available  |
| r) Viscosity                                    | 7.16 mm <sup>2</sup> /s at 20 °C (68 °F) -                       |
| s) Explosive properties                         | No data available  |
| t) Oxidizing properties                         | No data available  |

### **9.2 Other safety information**

- |                        |                    |
|------------------------|--------------------|
| Relative vapor density | 3.56 - (Air = 1.0) |
|------------------------|--------------------|

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## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### **10.2 Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **10.3 Possibility of hazardous reactions**

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!  
Violent reactions possible with:  
Oxidizing agents  
Nitric acid  
Strong acids  
organic nitro compounds

### **10.4 Conditions to avoid**

Strong heating.

### **10.5 Incompatible materials**

Aluminum, Copper, Copper alloys, Zinc, zinc alloys

### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - 1,080 mg/kg

Remarks:

Behavioral: Convulsions or effect on seizure threshold.  
(RTECS)

Inhalation: Corrosive to respiratory system.

Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l  
(Expert judgment)

LD50 Dermal - Rabbit - 1,090 mg/kg

Remarks:

(RTECS)

No data available

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: Causes burns.

Remarks:

(IUCLID)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes burns.

Remarks:

(IUCLID)

Causes serious eye damage.

**Respiratory or skin sensitization**

Local lymph node assay (LLNA) - Mouse

Result: positive

(OECD Test Guideline 429)

**Germ cell mutagenicity**

No data available

Mutagenicity (mammal cell test): chromosome aberration.

Chinese hamster ovary cells

Result: negative

Remarks:

(ECHA)

Ames test

S. typhimurium

Result: negative

OECD Test Guideline 488

Mouse - male - Liver cells

Result: negative

OECD Test Guideline 474

Mouse - male and female - Bone marrow

Result: negative

**Carcinogenicity**

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.

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.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation. - Respiratory system

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

RTECS: IE1225000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence



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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish	LC50 - Poecilia reticulata (guppy) - 1,014 mg/l - 96 h semi-static test LC50 - Poecilia reticulata (guppy) - 430 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 16 mg/l - 48 h (DIN 38412)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 1,164 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - Bacteria - 32.7 mg/l - 3 h Remarks: (ECHA)

### 12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 21 d Result: 87 % - Readily biodegradable. (OECD Test Guideline 301D)
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### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local No mixing with other waste. Handle uncleaned containers like the product See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### DOT (US)

UN number: 2079 Class: 8 Packing group: II  
Proper shipping name: Diethylenetriamine  
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

**IMDG**

UN number: 2079 Class: 8 Packing group: II EMS-No: F-A, S-B  
Proper shipping name: DIETHYLENETRIAMINE

**IATA**

UN number: 2079 Class: 8 Packing group: II  
Proper shipping name: Diethylenetriamine

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**SECTION 15: Regulatory information**

**SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

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.

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

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**SECTION 16: Other information**

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. CJ Chemicals LLC and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.cjchemicals.com](http://www.cjchemicals.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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