

## Material Safety Data Sheet

Date Printed: 09/JUN/2005

Date Updated: 16/MAR/2004

Version 1.2

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

---

1 - Product and Company Information

---

Product Name 1,3-DICYCLOHEXYLCARBODIIMIDE, 99%  
Product Number D80002

Company Sigma-Aldrich Pty. Ltd.  
12 Anella Avenue  
Castle Hill NSW 2154

Technical Phone # +61 2 9841 0555 (1800 800 097)

Fax +61 2 9841 0500 (1800 800 096)

Emergency Phone # +44 8701906777 (1800 448 465)

---

2 - Composition/Information on Ingredients

---

Product Name	CAS #	EC no	Annex I Index Number
1,3-DICYCLOHEXYLCARBODIIMIDE	538-75-0	208-704-1	615-019-00-5

Formula C13H22N2

Molecular Weight 206.33 AMU

Synonyms Bis(cyclohexyl)carbodiimide \* Cyclohexamine,  
N,N'-methanetetraylbis- (9CI) \* DCC \* DCCD \*  
DCCI \* Dicyclohexylcarbodiimide \*  
N,N'-Dicyclohexylcarbodiimide \*  
1,3-Dicyclohexylcarbodiimide \*  
N,N'-Methanetetrayl biscyclohexanamine

---

3 - Hazards Identification

---

## SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Harmful if swallowed. Toxic in contact with skin. Risk of serious damage to eyes. May cause sensitization by skin contact.

---

4 - First Aid Measures

---

## AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

## AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

## AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

#### AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

---

### 5 - Fire Fighting Measures

---

#### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

#### SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

#### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

---

### 6 - Accidental Release Measures

---

#### PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Procedure for decontamination of spill site: because of the hazardous nature of DCC and the corrosive nature of the clean up reagents, we recommend that the following protective equipment be used: self-contained breathing apparatus, rubber gloves, suit, and boots. Carefully pour a sufficient quantity of acetic acid (10%-20%) or hydrochloric acid (5%) on the spill. Allow to stand several hours. Scrape off crystallized N,N dicyclohexylurea into a container and hold for waste disposal. Wash down spill site with a sufficient quantity of acetic acid (10%-20%) or hydrochloric acid (5%) followed by a water rinse.

---

### 7 - Handling and Storage

---

#### HANDLING

Directions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Conditions of Storage: Keep tightly closed.

SPECIAL REQUIREMENTS: Moisture sensitive.

---

### 8 - Exposure Controls / Personal Protection

---

#### ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

#### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

#### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

---

## 9 - Physical and Chemical Properties

---

Appearance	Physical State: Solid Color: Colorless	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	122 - 124 °C	6 mmHg
MP/MP Range	34 - 35 °C	
Flash Point	113 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
SG/Density	N/A	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solvent: 0.1 g/ml CH <sub>2</sub> Cl <sub>2</sub> clear, colorless	

---

## 10 - Stability and Reactivity

---

### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, and nitrogen oxides.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

---

## 11 - Toxicological Information

---

RTECS NUMBER: FF2160000

### ACUTE TOXICITY

LD50

Oral

rat, male

1,110 mg/kg

LD50

Oral

rat, female

1,110 mg/kg

LD50

Skin

rat, male

79.4 mg/kg  
LD50  
Oral  
rat, female  
70.7 mg/kg  
LD50  
Oral  
Rat  
1,499 mg/kg  
LD50  
Skin  
Rabbit  
79.1 mg/kg

LD50  
Oral  
Rat  
400 mg/kg  
Remarks: Behavioral:Muscle weakness.  
Gastrointestinal:Hypermotility, diarrhea. Skin and Appendages:  
Other: Hair.

LC50  
Inhalation  
Rat  
159 mg/m3  
6H  
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and  
Taste):Eye:Lacrimation. Vascular:Regional or general arteriolar  
or venous dilation. Skin and Appendages: Other: Hair.

LD50  
Intraperitoneal  
Rat  
10 MG/KG  
Remarks: Behavioral:Convulsions or effect on seizure threshold.  
Lungs, Thorax, or Respiration:Dyspnea. Lungs, Thorax, or  
Respiration:Cyanosis.

LD50  
Oral  
Mouse  
> 800 mg/kg  
Remarks: Behavioral:Muscle weakness. Skin and Appendages: Other:  
Hair.

LD50  
Intraperitoneal  
Mouse  
>800 MG/KG  
Remarks: Behavioral:Muscle weakness. Skin and Appendages: Other:  
Hair.

LD50  
Skin  
Guinea pig  
10 ML/KG

#### IRRITATION DATA

Skin  
Rabbit  
500 mg

4 HR

Remarks: Severe irritation effect

#### SENSITIZATION

Skin: May cause allergic skin reaction.

#### SIGNS AND SYMPTOMS OF EXPOSURE

Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

#### ROUTE OF EXPOSURE

Skin Contact: Causes severe skin irritation.

Skin Absorption: Toxic if absorbed through skin.

Eye Contact: Causes severe eye irritation.

Inhalation: Toxic if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion: Toxic if swallowed.

---

#### 12 - Ecological Information

---

No data available.

---

#### 13 - Disposal Considerations

---

#### SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

---

#### 14 - Transport Information

---

#### RID/ADR

UN#: 2811

Class: 6.1

PG: II

Proper Shipping Name: Toxic solid, organic, n.o.s.

#### IMDG

UN#: 2811

Class: 6.1

PG: II

Proper Shipping Name: Toxic solid, organic, n.o.s.

Marine Pollutant: No

Severe Marine Pollutant: No

Technical Name: Required

#### IATA

UN#: 2811

Class: 6.1

PG: II

Proper Shipping Name: Toxic solid, organic, n.o.s.

Inhalation Packing Group I: No

Technical Name: Required

---

#### 15 - Regulatory Information

---

#### CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 615-019-00-5

INDICATION OF DANGER: T

Toxic.

R-PHRASES: 22 24 41 43

Harmful if swallowed. Toxic in contact with skin. Risk of serious damage to eyes. May cause sensitization by skin contact.

S-PHRASES: 24 26 37/39 45

Avoid contact with skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

---

## 16 - Other Information

---

### WARRANTY

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. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

### DISCLAIMER

For R&D use only. Not for drug, household or other uses.