



**LEONID CHEMICALS PVT. LTD.,
BANGALORE**

An ISO-9001:2008 Certified Company

Quality Assurance Department

(CODE) DOCUMENT : WI

(CODE) SECTION : WI/SM

(DATE) : 17.06.2013



Issue : 02

Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): N,N¹-DICYCLO HEXYLCARBODIIMIDE

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SECTION 1- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: N,N¹-Dicyclohexylcarbodiimide

Catalog Numbers: D068

Synonyms: DCC

CAS-No. : 538-75-0

Company Information:

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SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Dermal (Category 3), H311

Acute toxicity, Oral (Category 4), H302

Serious eye damage (Category 1), H318

Skin sensitisation (Category 1), H317

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

Classification according to EU Directives 67/548/EEC or 1999/45/EC

T Toxic R24

Xn Harmful R22

Xi Irritant R41

R43

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Signal word

Danger

Hazard statement(s)

H302

Harmful if swallowed.

H311

Toxic in contact with skin.

H317

May cause an allergic skin reaction.

H318

Causes serious eye damage.



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Precautionary statement(s)

P280 Wear protective gloves/ eye protection/ face protection.

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/ physician if you feel unwell.

Supplemental Hazard Statements

none

2.3 Other hazards - none

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : DCC
Formula : C13H22N2
Molecular Weight : 206,33 g/mol
CAS-No. : 538-75-0
EC-No. : 208-704-1
Index-No. : 615-019-00-5

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Dicyclohexylcarbodiimide		
CAS-No. 538-75-0 EC-No. 208-704-1 Index-No. 615-019-00-5	Acute Tox. 3; Acute Tox. 4; Eye Dam. 1; Skin Sens. 1; H302, H311, H317, H318	<= 100 %

Hazardous ingredients according to Directive 1999/45/EC

Component	Classification	Concentration
Dicyclohexylcarbodiimide		
CAS-No. 538-75-0 EC-No. 208-704-1 Index-No. 615-019-00-5	T, R22 - R24 - R41 - R43	<= 100 %

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures General advice



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Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, nitrogen oxides (NO_x)

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

no data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8



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6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Moisture sensitive.

7.3 Specific end use(s)

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

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

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

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.



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Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: Dermatril

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: Dermatril

test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | | |
|----|-----------------|---------------------|
| a) | Appearance Form | : solid |
| | Colour | : colourless |
| b) | Odour | : no data available |
| c) | Odour Threshold | : no data available |
| d) | pH | : no data available |



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- e) Melting point/freezing point : 34 - 35 °C
- f) Initial boiling point and boiling range : 122 - 124 °C at 8 hPa
: 148 - 152 °C at 20 hPa
- g) Flash point : 113 °C - closed cup
- h) Evaporation rate : no data available
- i) Flammability (solid, gas) : no data available
- j) Upper/lower flammability or explosive limits : no data available
- k) Vapour pressure : no data available
- l) Vapour density : no data available
- m) Relative density : no data available
- n) Water solubility : no data available
- o) Partition coefficient: noctanol/water : no data available
- p) Auto-ignition temperature : no data available
- q) Decomposition temperature : no data available
- r) Viscosity : no data available
- s) Explosive properties : no data available
- t) Oxidizing properties : no data available

9.2 Other safety information
no data available

SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity
no data available
- 10.2 Chemical stability
Stable under recommended storage conditions.
- 10.3 Possibility of hazardous reactions
no data available
- 10.4 Conditions to avoid
no data available
- 10.5 Incompatible materials
Strong oxidizing agents
- 10.6 Hazardous decomposition products



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Other decomposition products - no data available
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - rat - 1.499 mg/kg

LC50 Inhalation - rat - 6 h - 159 mg/m³

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 Dermal - rabbit - 79,1 mg/kg

Skin corrosion/irritation

Skin - rabbit

Result: Extremely corrosive and destructive to tissue. - 4 h

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

Germ cell mutagenicity

no data available

Carcinogenicity

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

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: FF2160000

Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue., May cause blindness., Symptoms may be



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delayed., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Liver - Irregularities - Based on Human Evidence

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

no data available

12.2 Persistence and degradability

no data available

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

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 2811 IMDG: 2811 IATA: 2811

14.2 UN proper shipping name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (Dicyclohexylcarbodiimide)
IMDG: TOXIC SOLID, ORGANIC, N.O.S. (Dicyclohexylcarbodiimide)
IATA: Toxic solid, organic, n.o.s. (Dicyclohexylcarbodiimide)



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14.3 Transport hazard class(es)

ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

no data available

SECTION 15: REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

no data available

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Eye Dam. Serious eye damage

H302 Harmful if swallowed.

H311 Toxic in contact with skin.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

Skin Sens. Skin sensitization

Full text of R-phrases referred to under sections 2 and 3

T Toxic

R22 Harmful if swallowed.

R24 Toxic in contact with skin.

R41 Risk of serious damage to eyes.

R43 May cause sensitisation by skin contact.



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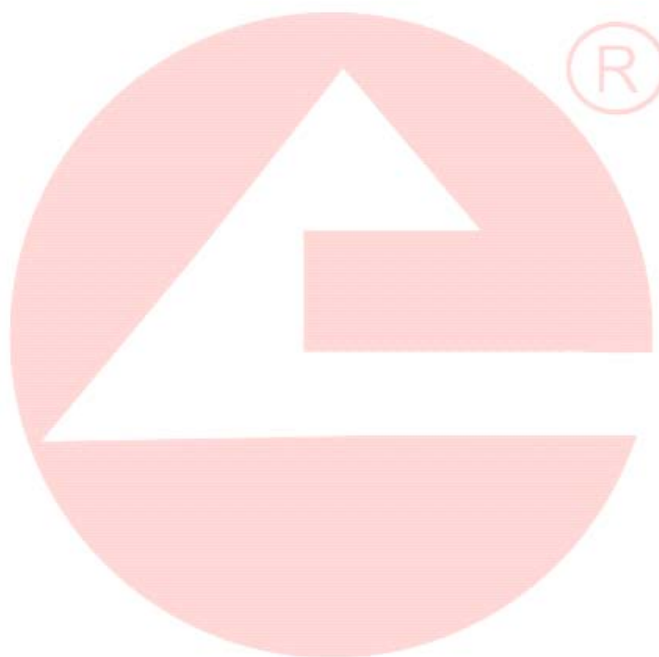
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SECTION 17 - ADDITIONAL INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Leonid Chemicals Pvt. Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Leonid Chemicals Pvt. Ltd. has been advised of the possibility of such damages.



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(CODE) DOCUMENT :
R/QPM/8.2.4/06

(CODE) SECTION :
D068

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Title: SPECIFICATION MANUAL – N,N¹-DICYCLO HEXYLCARBODIIMIDE

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Specification manual - N, N¹-Dicyclohexylcarbodiimide LR

C₁₃H₂₂N₂

MW: 206.33

Product : N,N¹-Dicyclohexylcarbodiimide LR
Description : White to pale yellow waxy solid or crystalline mass
Cat No : D068
Cas No : 538-75-0
Prepared Date : 17.06.2013
Approved Date : 17.06.2013

REVISION HISTORY

Issue/Rev	Description of Change	Author	Effective Date
01/00	Initial Release	S. Paul Joshua	07.03.2005
02/00	Reviewed no changes	S. Paul Joshua	01.04.2011
02/01	Included "Description & Identification" in the Tests	S. Paul Joshua	17.06.2013
Next Review Due :	02.04.2015		
To be reviewed by :	Head-QC/QA		

Sl. No.	Tests	Specification	Protocol
		LR	
1	Description	White to pale yellow waxy solid or crystalline mass.	LCPL
2	Assay (GC)	Min 98%	2/4/03
3	Identification	To conform	2/4/03
4	Melting point	33 - 35°C	2/4/11

Approved By: S. Paul Joshua, Head Quality Control and Quality Assurance

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