

N,N'-DICYCLOHEXYLCARBODIIMIDE

GHS Safety Data Sheet

Version No:2.0

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

N,N' - DICYCLOHEXYLCARBODIIMIDE

OTHER NAMES

C13-H22-N2, C6H11N=C=NC6H11, "N, N-dicyclohexylcarbodiimide", "N, N-dicyclohexylcarbodiimide", "dicyclohexyl carbodiimide", "N, N'-methanetetraylbiscyclohexanamine", "N, N'-methanetetraylbiscyclohexanamine", carbodicyclohexylimide, DCC, DCCI

PROPER SHIPPING NAME

TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.

PRODUCT USE

Peptide condensing agent; inhibitor of ATPase; reagent for the spectrophotometric determination of carboxylic acids; spray reagent for tri- and di-carboxylic acids and for the specific determination of citric and aconitic acids. Coupling reagent for preparing carboxylic acid derivatives (amides, esters, peptides)

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

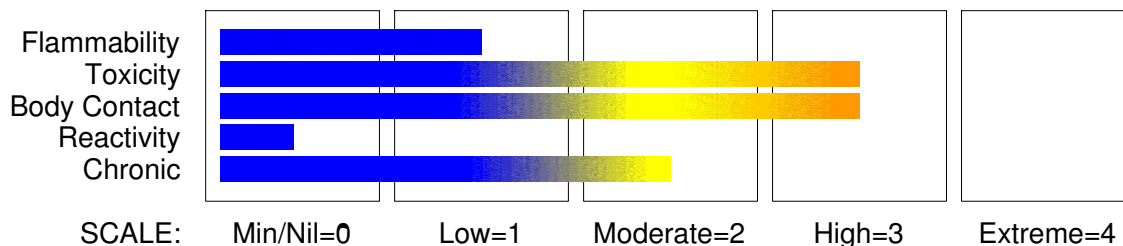
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

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HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Dermal) Category 3
Acute Toxicity (Inhalation) Category 2
Acute Toxicity (Oral) Category 4
Skin Corrosion/Irritation Category 1C
Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H330 H311 H302 H317 H314
Fatal if inhaled
Toxic in contact with skin
Harmful if swallowed
May cause allergic skin reaction
Causes severe skin burns and eye damage

PRECAUTIONARY STATEMENTS

Prevention

Wear protective gloves/clothing and eye/face protection.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Do not breathe dust or mist.
Wash thoroughly after handling.
Use only outdoors or in a well ventilated area.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wear protective gloves/clothing
Wear respiratory protection.
Do not eat, drink or smoke when using this product.
Contaminated clothing should not be allowed out of the workplace.
Wash hands thoroughly after handling.

Response

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Immediately call a POISON CENTER or doctor/physician.
If skin irritation or rash occurs, seek medical advice/attention.
Wash contaminated clothing before reuse.
Keep container tightly closed.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if

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Section 2 - HAZARDS IDENTIFICATION

present and easy to do. Continue rinsing.
If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.
Call a POISON CENTER or doctor/physician if you feel unwell.
Absorb spillage to prevent material damage.
Specific treatment: refer to Label or MSDS.
Remove/Take off immediately all contaminated clothing
IF ON SKIN: Gently wash with plenty of soap and water.
Wash/Decontaminate removed clothing before reuse.

Storage

Store in a corrosive resistant container with a resistant liner.
Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
dicyclohexylcarbodiimide	538-75-0	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

Rinse mouth out with plenty of water.
For advice, contact a Poisons Information Centre or a doctor.
• If swallowed do NOT induce vomiting.
• If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
• Observe the patient carefully.
• Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
• Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
• Seek medical advice.

EYE

If this product comes in contact with the eyes:
• Immediately hold eyelids apart and flush the eye continuously with running water.
• Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
• Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
• Transport to hospital or doctor without delay.
• Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:
• Immediately flush body and clothes with large amounts of water, using safety shower if

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Section 4 - FIRST AID MEASURES

available.

- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
 - Wear full body protective clothing with breathing apparatus.
 - Prevent, by any means available, spillage from entering drains or water course.
 - Use water delivered as a fine spray to control fire and cool adjacent area.
 - Avoid spraying water onto liquid pools.
 - DO NOT approach containers suspected to be hot.
 - Cool fire exposed containers with water spray from a protected location.
 - If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.
- All movable parts coming in contact with this material should have a speed of less than 1-metre/sec.

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Section 5 - FIRE FIGHTING MEASURES

Combustion products include: nitrogen oxides (NO_x).

FIRE INCOMPATIBILITY

Avoid contamination with strong oxidising agents as ignition may result.

Personal Protective Equipment

- Breathing apparatus.
- Gas tight chemical resistant suit.
- Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

DO NOT touch the spill material.

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

DO NOT touch the spill material.

Clear area of personnel and move upwind.

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X



X



+



X



X



+

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

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Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

SUITABLE CONTAINER

- Glass container.
- Polyethylene or polypropylene container.
 - Packing as recommended by manufacturer.
 - Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- Avoid storage with oxidisers.
Avoid strong acids.

STORAGE REQUIREMENTS

- Keep dry.
- Store in original containers.
 - Keep containers securely sealed.
 - No smoking, naked lights or ignition sources.
 - Store in a cool, dry, well-ventilated area.
 - Store away from incompatible materials and foodstuff containers.
 - Protect containers against physical damage and check regularly for leaks.
 - Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- dicyclohexylcarbodiimide:

CAS:538- 75- 0

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

MATERIAL DATA

These "dusts" have little adverse effect on the lungs and do not produce toxic effects or organic disease. Although there is no dust which does not evoke some cellular response at sufficiently high concentrations, the cellular response caused by P.N.O.C.s has the following characteristics:

- the architecture of the air spaces remain intact,
- scar tissue (collagen) is not synthesised to any degree,
- tissue reaction is potentially reversible.

Extensive concentrations of P.N.O.C.s may:

- seriously reduce visibility,
- cause unpleasant deposits in the eyes, ears and nasal passages,
- contribute to skin or mucous membrane injury by chemical or mechanical action, per se, or by the rigorous skin cleansing procedures necessary for their removal. [ACGIH]

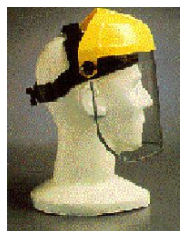
This limit does not apply:

- to brief exposures to higher concentrations
- nor does it apply to those substances that may cause physiological impairment at lower concentrations but for which a TLV has as yet to be determined.

This exposure standard applies to particles which

- are insoluble or poorly soluble* in water or, preferably, in aqueous lung fluid (if data is available) and
- have a low toxicity (i.e.. are not cytotoxic, genotoxic, or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or by a mechanism of lung overload).

PERSONAL PROTECTION



EYE

- Safety glasses with side shields.
- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

DO NOT handle directly. Wear gloves and use scoop / tongs / tools.
Elbow length PVC gloves.
Nitrile gloves.
PVC boots.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult
your

Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:

solvent, vapours, degreasing etc., evaporating
from tank (in still air)

aerosols, fumes from pouring operations,

intermittent container filling, low speed

conveyer transfers, welding, spray drift,

plating acid fumes, pickling (released at low
velocity into zone of active generation)

direct spray, spray painting in shallow booths,
drum filling, conveyer loading, crusher dusts,
gas discharge (active generation into zone of
rapid air motion)

grinding, abrasive blasting, tumbling, high
speed wheel generated dusts (released at high
initial velocity into zone of very high rapid
air motion).

Air Speed:

0.25- 0.5 m/s (50- 100 f/min)

0.5- 1 m/s (100- 200 f/min.)

1- 2.5 m/s (200- 500 f/min)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to
capture

Upper end of the range

1: Disturbing room air currents

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

2: Contaminants of low toxicity or of nuisance value only

3: Intermittent, low production.

4: Large hood or large air mass in motion

2: Contaminants of high toxicity

3: High production, heavy use

4: Small hood - local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White crystalline powder with heavy sweet odour; does not mix with water.

PHYSICAL PROPERTIES

Solid.

Does not mix with water.

Corrosive.

Molecular Weight: 206.22

Melting Range (°C): 34- 35

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable

Volatile Component (%vol): Low

Relative Vapour Density (air=1): >1

Lower Explosive Limit (%): Not available

Autoignition Temp (°C): Not available.

State: Divided solid

Boiling Range (°C): 122- 124 (6 mm)

Specific Gravity (water=1): Not available

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not available

Evaporation Rate: Not available

Flash Point (°C): >110

Upper Explosive Limit (%): Not available

Decomposition Temp (°C): Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

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Section 11 - TOXICOLOGICAL INFORMATION

SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.

When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

SKIN

Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

The material can produce chemical burns following direct contact with the skin.

Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals.

Considered toxic by all exposure routes.

Principal routes of exposure are usually by skin contact/absorption and inhalation of generated dust.

No human exposure data available. For this reason health effects described are based on experience with chemically related materials.

As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

TOXICITY AND IRRITATION

TOXICITY

Dermal (rat) LD50: 71 mg/kg

IRRITATION

Nil Reported [Sigma/Aldrich]

Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant:Not Determined

No data for dicyclohexylcarbodiimide.

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Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC,CORROSIVE
HAZCHEM: 2XE

UNDG:

Dangerous Goods Class:	6.1	Subrisk:	8
UN Number:	2928	Packing Group:	II
Shipping Name:TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.			

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	8
UN/ID Number:	2928	Packing Group:	II
ERG Code:	6C		
Shipping name:TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.			

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	8
UN Number:	2928	Packing Group:	II
EMS Number:	F- A, S- B	Marine Pollutant:	Not Determined
Shipping name:TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.			

Section 15 - REGULATORY INFORMATION

REGULATIONS

No regulations applicable
No data available for dicyclohexylcarbodiimide as CAS: 538-75-0.

Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information

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Section 16 - OTHER INFORMATION

currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 12-May-2018