



Revision Number: 004.1

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**1. PRODUCT AND COMPANY IDENTIFICATION**

<b>Product name:</b>	<b>DURABOND M-11FL MED DEV URETHAN</b>	<b>IDH number:</b>	314077
<b>Product type:</b>	Polyurethane adhesive	<b>Item number:</b>	209677
		<b>Region:</b>	United States
<b>Company address:</b>	<b>Contact information:</b>		
Henkel Corporation	Telephone: 860.571.5100		
One Henkel Way	Emergency telephone: 860.571.5100		
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**2. HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW**

<b>Physical state:</b>	Liquid	<b>HEALTH:</b>	*3
<b>Color:</b>	Clear	<b>FLAMMABILITY:</b>	1
<b>Odor:</b>	little intrinsic odour	<b>PHYSICAL HAZARD:</b>	1
		<b>Personal Protection:</b>	See MSDS Section 8
<b>DANGER:</b>	HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE LUNG DAMAGE. MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTION.		

**Relevant routes of exposure:** Skin, Inhalation, Eyes, Ingestion

## Potential Health Effects

### Inhalation:

Acute: Inhalation of dicyclohexylmethane-4,4'-diisocyanate at concentrations above the TLV can irritate the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with preexisting, nonspecific bronchial hyper-reactivity can respond to concentrations below the TLV with similar symptoms as well as lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis with flu-like symptoms (e.g. fever, chills) have also been reported. Chronic: As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. Chronic overexposure to isocyanates has been reported to cause lung damage. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthma attack, could be immediate or delayed (up to several hours after exposure). Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Over exposure to isocyanates has also been reported to cause lung damage (including decrease in lung function) which may be permanent. Sensitization can either be temporary or permanent.

### Skin contact:

Acute: This material is a primary skin irritant. Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Dicyclohexylmethane-4,4'-diisocyanate is also a potent sensitizer. Experience indicates that direct contact is the route of exposure most likely to cause sensitization. Once sensitized, an individual may react even to airborne levels below the TLV with the following symptoms: itching and tingling of the earlobes and neck, rash, hives, swelling of the arms and legs or other symptoms common to allergic dermatitis. Chronic: Prolonged contact can cause reddening, swelling, rash, scaling, blistering and in some cases, skin sensitization. Animal tests have indicated that respiratory sensitization can result from skin contact with dicyclohexylmethane-4,4'-diisocyanate. Individuals who have skin sensitization can develop these symptoms from contact with liquid or vapor.

### Eye contact: Ingestion:

Stinging. Liquid, aerosols or vapor are irritating and can cause tearing, reddening and swelling. Irritation and corrosive action can occur in the mouth, stomach tissue and digestive tract if swallowed. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea. Aspiration may occur during swallowing or vomiting, resulting in lung damage.

### Existing conditions aggravated by exposure:

Asthma. Other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity). Skin allergies. Eczema.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Dicyclohexylmethane-4,4'-diisocyanate	5124-30-1	60 - 100
Substituted Polyol	Proprietary	30 - 60

## 4. FIRST AID MEASURES

### Inhalation:

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult a physician should this development occur.

### Skin contact:

Remove contaminated clothing and footwear. After contact with skin, wash immediately with plenty of water. For severe exposures, get under safety shower after removing clothing, then get medical attention. For lesser exposure, seek medical attention if irritation develops or persists after area is washed. Wash clothing before reuse. Thoroughly clean shoes before reuse.

### Eye contact:

Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.

<b>Ingestion:</b>	DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
<b>Notes to physician:</b>	Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. Skin: This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound. Respiratory: This compound is a known pulmonary sensitizer. Treat symptomatically and supportively.

## 5. FIRE FIGHTING MEASURES

<b>Flash point:</b>	> 201 °C (> 393.8 °F) Tagliabue closed cup
<b>Autoignition temperature:</b>	Not available
<b>Flammable/Explosive limits - lower:</b>	Not available
<b>Flammable/Explosive limits - upper:</b>	Not available
<b>Extinguishing media:</b>	Foam, dry chemical or carbon dioxide.
<b>Special firefighting procedures:</b>	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. During a fire, MDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion.
<b>Unusual fire or explosion hazards:</b>	Closed containers may rupture (due to build up of pressure) when exposed to extreme heat.
<b>Hazardous combustion products:</b>	Oxides of carbon. Oxides of nitrogen. Hydrogen cyanide. Irritating organic vapours.

## 6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

<b>Environmental precautions:</b>	Do not allow product to enter sewer or waterways.
<b>Clean-up methods:</b>	Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most fire departments) may be placed over spill. Large quantities may be pumped into closed, but not sealed containers for disposal. For minor spills, absorb isocyanates with sawdust or other absorbent, shovel into suitable unsealed containers, transport to well ventilated area (outside) and treat with neutralizing solution: mixture of 80% water and 20% non-ionic surfactant Tergitol TMN-10; or 90% water, 3-8% concentrated ammonia and 2% detergent. Add about ten parts of neutralizer per part of isocyanate, with mixing. Allow to stand uncovered for 48 hours to let carbon dioxide escape. Decontaminate floor with decontamination solution letting stand for at least 15 minutes.

## 7. HANDLING AND STORAGE

<b>Handling:</b>	Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not taste or swallow. Do not breathe gas/fumes/vapor/spray. Keep container closed. Use only with adequate ventilation.
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**Storage:**

For safe storage, store between 30 °C (86°F) and 40 °C (104°F)  
Store in tightly closed containers to prevent moisture contamination. Do not  
reseal if contamination is suspected. Reacts slowly with water to liberate  
carbon dioxide gas. Production of this gas can cause sealed containers to  
expand and possibly rupture explosively.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Dicyclohexylmethane-4,4'-diisocyanate	0.005 ppm TWA	None	None	None
Substituted Polyol	None	None	None	None

**Engineering controls:**

Local exhaust should be used to maintain levels below the TLV whenever MDI is processed, heated or spray applied. Standard reference sources regarding industrial ventilation (i.e., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation. Air monitoring: Isocyanate exposure levels must be monitored. Monitoring of airborne isocyanates in the breathing zone of individuals should become part of the overall employee exposure characterization program. Monitoring techniques have been developed by NIOSH and OSHA. Medical Surveillance: Medical supervision of all employees who handle or come in contact with isocyanates is recommended. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with isocyanates. Once a person is diagnosed as sensitized to an isocyanate, no further exposure can be permitted.

**Respiratory protection:**

A positive pressure, supplied-air respirator or a self-contained breathing apparatus is recommended when: airborne concentrations of isocyanate are known to exceed 0.005 ppm; operations are performed in a confined space or area with limited ventilation; material is heated or sprayed.

**Eye/face protection:**

Safety goggles or safety glasses with side shields.

**Skin protection:**

Use impermeable gloves and protective clothing as necessary to prevent skin contact. Nitrile gloves.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Clear
Odor:	little intrinsic odour
Odor threshold:	Not available
pH:	Not available
Vapor pressure:	0.000016 mm hg (25 °C (77°F))
Boiling point/range:	Not available
Melting point/ range:	Not available
Specific gravity:	1.07
Vapor density:	Not available
Flash point:	> 201 °C (> 393.8 °F) Tagliabue closed cup
Flammable/Explosive limits - lower:	Not available
Flammable/Explosive limits - upper:	Not available
Autoignition temperature:	Not available
Evaporation rate:	Not available
Solubility in water:	Reacts slowly with water to liberate carbon dioxide gas.
Partition coefficient (n-octanol/water):	Not available
VOC content:	< 1 %; < 10 g/l Estimated

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable
<b>Hazardous reactions:</b>	Contact with moisture, other materials which can react with isocyanates, or temperatures above 204.4°C (400°F), may cause polymerization.
<b>Hazardous decomposition products:</b>	None
<b>Incompatible materials:</b>	Strong bases. Acids. Water Amines. Alcohols. Oxidizing agents. Will cause some corrosion of copper alloys and aluminum.
<b>Conditions to avoid:</b>	Store away from incompatible materials. High temperatures. Contamination with water.

## 11. TOXICOLOGICAL INFORMATION

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Dicyclohexylmethane-4,4'-diisocyanate	No	No	No
Substituted Polyol	No	No	No

Hazardous components	Health Effects/Target Organs
Dicyclohexylmethane-4,4'-diisocyanate	Irritant, Allergen, Respiratory
Substituted Polyol	No Target Organs

## 12. ECOLOGICAL INFORMATION

<b>Ecological information:</b>	Fish toxicity: Brachydanio 96 hours - LC0= 0.69 mg/L; LC50- 1.20 mg/L; LC100= 2.76 mg/L. (Values for isocyanate).
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## 13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

<b>Recommended method of disposal:</b>	Follow all local, state, federal and provincial regulations for disposal.
<b>Hazardous waste number:</b>	Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

## 14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

### U.S. Department of Transportation Ground (49 CFR)

<b>Proper shipping name:</b>	Other regulated substances, liquid, n.o.s. (Dicyclohexyl methane diisocyanate)
<b>Hazard class or division:</b>	9
<b>Identification number:</b>	NA 3082
<b>Packing group:</b>	III
<b>Exceptions:</b>	(Not more than 5 L), Consumer Commodity, ORM-D

### International Air Transportation (ICAO/IATA)

<b>Proper shipping name:</b>	Aviation regulated liquid, n.o.s. (Dicyclohexyl methane diisocyanate)
<b>Hazard class or division:</b>	9
<b>Identification number:</b>	UN 3334
<b>Packing group:</b>	None

**Water Transportation (IMO/IMDG)**

Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dicyclohexyl methane diisocyanate)
Hazard class or division:	9
Identification number:	UN 3082
Packing group:	III
Marine pollutant:	Dicyclohexyl methane diisocyanate

**15. REGULATORY INFORMATION****United States Regulatory Information**

<b>TSCA 8 (b) Inventory Status:</b>	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
<b>TSCA 12(b) Export Notification:</b>	None above reporting de minimus
<b>CERCLA/SARA Section 302 EHS:</b>	None above reporting de minimus
<b>CERCLA/SARA Section 311/312:</b>	Immediate Health, Delayed Health, Reactive
<b>CERCLA/SARA 313:</b>	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Dicyclohexylmethane-4,4'-diisocyanate (CAS# 5124-30-1).
<b>California Proposition 65:</b>	No California Proposition 65 listed chemicals are known to be present.

**Canada Regulatory Information**

<b>CEPA DSL/NDL Status:</b>	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
<b>WHMIS hazard class:</b>	D.1.A, D.2.A, D.2.B

**16. OTHER INFORMATION**

**This material safety data sheet contains changes from the previous version in sections:** New Material Safety Data Sheet format., This Material Safety Data Sheet contains changes from the previous version in Section(s): 2, 4, 7, 8, 10, 14

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