



caschem

A division of Rutherford Chemicals, LLC

VORITE® 689

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MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT IDENTIFICATION

Manufacturer: Rutherford Chemicals LLC - CasChem Site  
40 Avenue A  
Bayonne, NJ 07002

Information and Emergency Phone during business hours: 1-800CASCHEM

For use only in the event of chemical emergencies involving  
a spill, leak, fire, or accident with this material:  
Call CHEMTREC 800 424-9300

Trade Name.....: VORITE® 689  
Chemical Name.....: Mixture  
Synonyms.....: N/A  
.....:  
.....:  
CAS #.....: Mixture  
Chemical Family.....: Urethane prepolymer  
Product Code.....: 72041  
Product Use.....: N/A  
PIN#.....: None  
WHMIS Class.....: D1A,D2A,D2B

SECTION 2. COMPOSITION/INFORMATION ON COMPONENTS

COMPONENTS	CAS #	WEIGHT %
4,4'-Methylene diphenyl diisocyanate (MDI)	101-68-8	18%
Trade Secret NJ TSR # 54004100000-5093P	Trade Secret	

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview:

Clear yellow liquid with aromatic odor. Can evolve irritating and/or sensitizing vapors when heated. Hot liquid can react vigorously with water, generating CO2. Causes eye and skin irritation.

Breathing:

MDI vapors or mists at excessive levels can irritate the mucous membranes causing runny nose, sore throat, coughing, shortness of breath, chest discomfort, fever, and reduced lung function. Persons with preexisting, nonspecific bronchial hyperactivity can respond to lower concentrations with similar symptoms or asthma attack. Overexposure may lead to bronchitis, bronchial spasm and fluid in the lungs. These symptoms are usually reversible. Chemical and hypersensitive pneumonitis, with flu-like symptoms have been reported. These symptoms can be delayed up to several hours after exopsure.

Skin Contact:

May cause extreme allergic reaction. May cause skin irritation.

continued ...

## SECTION 3. HAZARDS IDENTIFICATION

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**Eye Contact:**

May cause severe irritation, including excess redness and swelling of the conjunctiva.

**Swallowing:**

May cause abdominal cramps, nausea, and diarrhea.

**Condition Aggravated by Exposure:**

Asthma; other respiratory disorders such as bronchitis, emphysema, bronchial hyperactivity; skin allergies; eczema.

**Long Term Effects:**

Individuals sensitized from prior contact to diisocyanates may react to levels below the exposure limit. Symptoms can include chest tightness, wheezing, cough, shortness of breath or asthma attack, and may be immediate or delayed for several hour. Onset may occur from exposure to dust, cold air or other irritants. Increased sensitivity can persist for weeks to years. Overexposure may cause lung damage, including decreased lung function.

## SECTION 4. FIRST AID MEASURES

**Breathing:**

Rescuers should put on appropriate protective gear. Remove from area of exposure. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Keep victim warm. Get immediate medical attention.

**Skin:**

Immediately flush with large amounts of water for at least 15 minutes. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. Get prompt medical attention if symptoms occur. Thoroughly wash or discard clothes and shoes before reuse.

**Eye:**

Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids apart. Get medical attention if irritation or other symptoms occur.

**Swallowing:**

Get immediate medical attention. Never give anything by mouth to an unconscious person.

## SECTION 5. FIRE FIGHTING MEASURES

Flash Point.....: 415 deg F                    213 deg C  
 Method.....: pmcc  
 Lower Explosive Limit.....: N/A  
 Upper Explosive Limit.....: N/A  
 Auto Ignition Temperature....: N/A  
 Extinguishing Media.....: CO2, dry chemical, foam.

## Firefighting Procedures:

Evacuate area and fight fire from safe distance. Wear pressure-demand self-contained breathing apparatus (MSHA/NIOSH-approved or equivalent) and full protective gear.

## Special Firefighting Procedures:

Full fire fighting protective clothing which leaves no skin surfaces exposed and self-contained breathing apparatus are to be used. Highly toxic vapors may be generated by thermal decomposition or combustion. Isocyanates, when reacted with water generate carbon dioxide gas. Hot isocyanates may react vigorously with water. When heated above 400 degrees F, sealed containers may rupture violently. Use water to cool fire-exposed containers.

## Sensitivity to Explosion:

None expected by mechanical impact or static discharge

## Unusual Fire and Explosion Hazards:

Reactions between water and hot isocyanate may be vigorous.

## Conditions for Flammability:

Material may burn, but does not ignite readily. Avoid high temperatures.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

## General:

This material should be prevented from contaminating soil or from entering sewerage and drainage systems and bodies of water. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Prevent skin and eye contact. See Section 8 Exposure Controls/Personal Protection.

## Small Spill:

Absorb spill with inert material (e.g., dry sand, earth). Place in an approved chemical waste container.

continued ...

**SECTION 6. ACCIDENTAL RELEASE MEASURES** ... continued

**Large Spill:**  
Shut off leak, if safe to do so. Clean up spills immediately, observing precautions in Protective Equipment section. Contain spilled liquid with sand or earth. Retain all contaminated water for removal and treatment.

**SECTION 7. HANDLING AND STORAGE**

**Handling:**  
Use with adequate ventilation. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Follow all MSDS/label precautions even after containers are emptied, since containers may retain product residues. Avoid contact with skin and eyes. Avoid breathing vapor or mist.

**Storage:**  
Store away from heat, sparks, and flame. Hot isocyanates may react vigorously with water. Heated sealed containers may rupture violently. Store in a dry area in tightly closed containers. Prevent contamination with water or other incompatible materials.

**SECTION 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION**

**Exposure Levels:**

COMPONENT	OSHA			ACGIH			UNITS
	TWA	STEL	CEL	TWA	STEL	CEL	
4,4'-Methylene diphenyl diisocyanate	-	-	0.02	0.005	-	-	ppm

**Engineering Controls:**  
Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of dust, mist or vapor.

**Respiratory Protection:**  
Use NIOSH/MSHA approved respirator when airborne exposure may exceed exposure limits. Due to the poor warning properties of isocyanates, a positive pressure supplied-air respirator must be worn when exposures exceed exposure limits, when exposure limits are unknown, or when there is any potential for uncontrolled release of isocyanate vapors. Consult with respirator's manufacturer to determine the appropriate type of equipment for a given application. A respiratory protection program that meets OSHA 1910.134 and ANSI 288.2 requirements must be followed whenever workplace conditions warrant respirator use.

continued ...

**SECTION 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION ... continued**

**Eye/Face Protection:**  
Wear splash-proof chemical goggles and a faceshield.

**Skin Protection:**  
Wear chemical resistant gloves. Cover all exposed skin with clean, protective clothing as appropriate.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance.....	:	Clear yellow liquid	
Odor.....	:	Mild aromatic	
Initial Boiling Point.....	:	N/A	N/A
Final Boiling Point.....	:	N/A	N/A
Specific Gravity (Relative to Water).....	:	1.170 @ 25C	
Vapor Density(relative to air).....	:	Heavier	
Vapor Pressure (mm Hg).....	:	N/A	
pH.....	:	N/A	
Solubility in Water.....	:	Nil	
Freezing/Melting Point.....	:	20 deg F	
Octanol/water Partition Coefficient.....	:	N/A	
Odor Threshold.....	:	N/A	
Viscosity.....	:	97 stokes @ 25C	
Evaporation Rate (relative to n-Butylacetate)	:	Slower	

**SECTION 10. STABILITY AND REACTIVITY**

**Stable:**  
Yes.

**Hazardous Polymerization:**  
May occur if in contact with moisture or other materials that react with isocyanates. May occur at temperatures over 400 degrees F.

**Strong Oxidizer:**  
No.

**Incompatibility:**  
Can react vigorously with oxidizing materials. Avoid contact with water, amines, and alcohols.

**Conditions to Avoid:**  
Avoid temperatures over 400 degrees F. Prevent contact with water, alcohols, or amines. May cause some corrosion to copper alloys and aluminum.

continued ...

N/A = Not Available

SECTION 10. STABILITY AND REACTIVITY ... continued

Hazardous Decomposition Products:  
Isocyanate vapor and mist, carbon dioxide, carbon monoxide,  
nitrogen oxides, and traces of hydrogen cyanide.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological Data:  
Vorite 689 (product code 72041);  
Oral LD50, rat; >5,000 mg/kg  
Dermal LD50, rabbit; >2,000 mg/kg  
Inhalation LC50, rat; >0.04 mg/L/1-hr (maximum vapor concentration)

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicological Information:  
Not available.  
  
Chemical Fate:  
Not available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal:  
Dispose of in accordance with all federal, state, and local regulations.  
  
Container Disposal:  
Dispose of in accordance with all federal, state, and local regulations.

SECTION 14. TRANSPORT INFORMATION

DOT Shipping Name...: Not regulated  
Hazard Class...: :  
Packing Group...: :  
UN/NA No. ....: :  
DOT Labels...: :  
Subsidiary Label...: :  
DOT Placards...: :  
  
IMO Shipping Name...: Not regulated  
Hazard Class...: :  
Packing Group...: :  
UN No. ....: :  
IMO Labels...: :  
Subsidiary Label...: :  
  
IATA Shipping Name...: Not regulated  
Hazard Class...: :

continued ...

SECTION 14. TRANSPORT INFORMATION	... continued
Packing Group.....:	
UN No. ....:	
IATA Labels.....:	
Subsidiary Label.....:	

SECTION 15. REGULATORY INFORMATION			
SARA 311/312 Chronic Health Hazard : yes			
SARA 311/312 Acute Health Hazard.. : yes			
SARA 311/312 Fire Hazard..... : no			
SARA 311/312 Sudden Pressure..... : no			
SARA 311/312 Reactivity Hazard.... : no			
Section 302 Extremely Hazardous:			
Ingredients	CAS #	Weight %	TPQ
** None **			
CERCLA Hazardous Substances:			
Ingredients	CAS #	Weight %	RQ
4,4'-Methylene diphenyl diisocyanate (MDI)	101-68-8	18%	5000
Section 313 Toxic Chemicals:			
Ingredients	CAS #	Weight %	
4,4'-Methylene diphenyl diisocyanate (MDI)	101-68-8	18%	
NJ Environmental Hazardous Substance List:			
Ingredients	CAS #		
** None **			
California Proposition 65 Ingredients:			
Ingredients	CAS #	Weight %	
** None **			
<b>WHMIS:</b>			
This MSDS was prepared in accordance with Canadian Controlled Product Regulations. This product meets hazard class criteria D1A, D2A, and D2B.			
<b>TSCA:</b>			
Components of this product are listed on the TSCA inventory.			
<b>DSL/EINECS:</b>			
Components of this product are listed on the Canadian Domestic Substances List. Listing on the European Inventory of Existing Commercial Chemical Substances has not been determined.			
<b>WHMIS:</b>			
This MSDS was prepared in accordance with Canadian Controlled Product Regulations. This product meets hazard class criteria D1A, D2A, and D2B.			
continued ...			

## SECTION 15. REGULATORY INFORMATION

... continued

## Additional Regulatory Information:

This product contains 18% 4,4'-methylene diphenyl diisocyanate, a toxic chemical subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

## SECTION 16. OTHER INFORMATION

## NFPA Hazard Ratings:

Health..... : 3  
Fire..... : 1  
Reactivity..... : 1  
Specific Hazard.... : None

## HMIS Hazard Rating:

Health..... : 3  
Fire..... : 1  
Reactivity..... : 1

## MSDS Revisions:

05/17/94; Identified 4,4'-MDI (sect 2,8,14,15); Modified health hazard assessment (sect 3); Modified WHMIS information (sect 1)  
02/02/95; Changed transportation information (sect 14); Added WHMIS, DSL and EINECS information (sect 15)  
01/15/97; Revised PIN# (sect 1), personal protection information (sect 8) and transport information (sect 14)  
11/06/03; Added regulatory information (sect 15)

## NOTE:

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Rutherford Chemicals LLC. The data on this sheet relates only to the specific material designated herein. Rutherford Chemicals LLC assumes no legal responsibility for the use of reliance upon these data.

Printed Feb. 14, 2005: Section 2 updated to include New Jersey, Right-to-Know, Trade Secret Registration Number (NJ TSR #).