

EPS - Material Safety Data Sheet

Section 1: Substance Identity and Company Information

Product Name: Northwest Foam Expanded Polystyrene Modified Grade
Manufacturer: Northwest Foam Products, Inc.
2390 Rostron Circle, Twin Falls, ID 83301
800-398-0804 (8am-5pm MT)
Chemical Name/Synonyms: Modified EPS, Modified Foam Polystyrene
Chemical Family: Ethenylbenzene Homopolymer
Chemical Formula: (C₈H₈)_n

Section 2: Chemical Composition

Ingredient	CAS No.	Approx. Weight Percentage
Benzene, Ethenyl-, Homopolymer	9003-53-6	>98%
Hexabromocyclododecane (Fire Retardant)	3194-55-6	<1%
Pentane	109-66-0	<1%

Section 3: Hazards Identification

Primary route(s) of entry into body: Inhalation and ingestion

Acute effects:

Eyes: Dust particles may cause mechanical irritation.

Skin: Direct contact may cause slight skin irritation.

Inhalation: May cause respiratory discomfort similar to inhalation of too much "inert" dust.

Ingestion: Biologically inert.

Chronic effects in humans: No known adverse effects.

Section 4: First Aid Measures

Eye contact: Hold eyelids open and flush immediately with gentle stream of water for at least 15 minutes.

Seek medical attention if irritation persists.

Skin contact: Wash exposed areas with mild soap and water.

Inhalation: Move person to fresh air. If breathing is difficult seek medical attention.

Ingestion: Not likely to cause serious injury if ingested.

Section 5: Fire Fighting Measures

Flash Pt. and Method Used: 6750 F (ASTM D-1929 per bead manufacturers)

Special Fire fighting Instructions: Use self-contained breathing apparatus respirator and approved personal protective clothing.

Extinguishing Media: Water fog, carbon dioxide, foam and dry chemical.

Auto-Ignition Temperature: 8800 F (ASTM D-1929 per bead manufacturers)

Unusual Fire and Explosion Hazards: Combustion causes dense, black smoke. Smoke consists of carbon monoxide, carbon dioxide and styrene. Other undetermined hydrocarbon fractions could be released in small quantities.

Section 6: Accidental Release Measures

Spill or leak procedures: Pickup or if material is in small pieces, sweep up and place in suitable container for disposal

Reportable Quantity: None

Disposal Method: Recycle, incinerate with waste heat recovery, or landfill in accordance with federal, state and local regulations.

Section 7: Handling and Storage

Storage: Although expanded polystyrene contains a fire retardant additive, it is considered combustible and adequate protection from sources of ignition should be taken.

Section 8: Exposure Controls and Personal Protection

Personal protective equipment:

Respiratory Protection: Use approved dust mask when sawing or sanding

Gloves: none required

Eye Protection: Use approved safety glasses/goggles when sawing or sanding.

Section 9: Physical and Chemical Properties

Appearance: Rigid blocks or boards Melting Point: Not Applicable (softening begins at 1600 F)

Odor: Slight hydrocarbon odor.
Physical state: Solid
Color: White
Boiling Point: Not Applicable
pH: Not Applicable

Volatiles by Volume: <2
Vapor Density (Air=1): Not Applicable
Evaporation Rate: None
Solubility in water: Insoluble
Specific gravity: <1

Section 10: Stability and Reactivity

Stability: The product is stable.
Conditions to Avoid: Fire and high temperatures.
Incompatibility: Hydrocarbons, esters, insecticides, amines and aldehydes.
Hazardous polymerization: None.
Hazardous decomposition: Carbon monoxide, acid gases, water, carbon dioxide, carbon.

Section 11: Toxicological Information

Ventilation: No special ventilation requirements
Personal protective equipment:
Respiratory Protection: Use approved dust mask when sawing or sanding
Gloves: none required
Eye Protection: Use approved safety glasses/goggles when sawing or sanding.

Section 12: Ecological Information

Biologically Inert

Section 13: Disposal Considerations

Non hazardous waste. Dispose of material according to local, state, federal regulations.

Section 14: Transport Information

Not a "Hazardous Material"

Section 15: Regulations

TSCA Status: Listed
Hazard Ratings: Health: 0 Fire: 2 Reactivity: 0

Section 16: Other Information

Expanded Polystyrene materials sold for construction use have a fire retardant modifier but are considered combustible, as are all organic materials. They must not be stored or installed near open flame or any other source of ignition. In addition, when EPS insulation is installed in the interior of a structure it must be protected by a proper thermal barrier, and the installer must review applicable local, state and federal building codes to determine the correct thermal barrier for the particular application

The information in the MSDS was obtained from sources which we believe are reliable. However the information is provided without any warranty, express or implied, regarding it's correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

Product: FROTH-PAK(TM) Sealant 200HFC Kit

Issue Date: 03/15/10

Isocyanate SDS pages 2-14

Polyol SDS pages 15-29

Effective Date: 03/15/10

NOTICE

The Material Safety Data Sheet information for the two component FROTH-PAK(TM) Sealant 200HFC Kit is contained in two separate datasheets; one for the isocyanate and one for the polyol. When printing or filing, please be sure to include both documents.



Material Safety Data Sheet

The Dow Chemical Company

Product: FROTH-PAK(TM) Sealant 200HFC Kit

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The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

Polyurethane System – Isocyanate

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
USA

Customer Information Number: 800-258-2436

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400

Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview

Color: Brown

Physical State: Liquid.

Odor: Musty

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Hazards of product:

WARNING! May cause eye irritation. May cause skin irritation. May cause allergic skin reaction. May cause allergic respiratory reaction. Vapor reduces oxygen available for breathing. May cause central nervous system effects. Keep upwind of spill. May cause anesthetic effects. May cause respiratory tract irritation. May cause lung injury. May react with water. Stay out of low areas. Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction. Toxic fumes may be released in fire situations. Contents under pressure.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause moderate eye irritation. May cause slight temporary corneal injury.

Skin Contact: Prolonged contact may cause skin irritation with local redness. May stain skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Skin Sensitization: Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

Inhalation: In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Respiratory Sensitization: May cause allergic respiratory response. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

Effects of Repeated Exposure: Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Cancer Information: Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Birth Defects/Developmental Effects: In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother.

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Based on information for component(s): 1,1,1,2-Tetrafluoroethane. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. Composition Information

Component	CAS #	Amount
Diphenylmethane Diisocyanate, isomers and homologues	9016-87-9	>= 60.0 - <= 100.0 %
4,4' -Methylenediphenyl diisocyanate	101-68-8	>= 30.0 - <= 60.0 %
1,1,1,2-Tetrafluoroethane	811-97-2	>= 5.0 - <= 10.0 %

Note: CAS 101-68-8 is an MDI isomer that is part of CAS 9016-87-9.

4. First-aid measures

Eye Contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Eye wash fountain should be located in immediate work area.

Skin Contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Medical Conditions Aggravated by Exposure: Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

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Emergency Personnel Protection: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing

agents are not available. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Unusual Fire and Explosion Hazards: Some components of this product will burn in a fire situation. Product reacts with water. Reaction may produce heat and/or gases. This reaction may be violent. Container may rupture from gas generation in a fire situation. Blowing agent vaporizes quickly at room temperature. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Isocyanates. Hydrogen cyanide. Carbon monoxide. Carbon dioxide. Hydrogen halides. Halogenated hydrocarbons.

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6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Absorb with materials such as: Vermiculite. Dirt. Sand. Clay. Do NOT use absorbent materials such as: Cement powder (Note: may generate heat). Collect in suitable and properly labeled open containers. Do not place in sealed containers. Suitable containers include: Metal drums. Plastic drums. Polylined fiber pacs. Wash the spill site with large quantities of water. Attempt to neutralize by adding suitable decontaminant solution: Formulation 1: sodium carbonate 5 - 10%; liquid detergent 0.2 - 2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3 - 8%; liquid detergent 0.2 - 2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure. Contact Dow for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Isolate area. Ventilate area of leak or spill. Keep personnel out of low areas. Keep upwind of spill. Keep unnecessary and unprotected personnel from entering the area. If available, use foam to smother or suppress. Refer to Section 7, Handling, for additional precautionary measures. See Section 10 for more specific information. Use appropriate safety

equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. Handling and Storage

Handling

General Handling: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Use with adequate ventilation. Wash thoroughly after handling. Keep container tightly closed. Contents under pressure. Do not puncture or incinerate container. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Do not enter confined spaces unless adequately ventilated. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage

Store under cover in a dry, clean, cool, well ventilated place away from sunlight. Do not store product contaminated with water to prevent potential hazardous reaction.

Storage Period:

12 Months

Storage temperature:

15 - 27 °C

8. Exposure Controls / Personal Protection

Exposure Limits

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Component	List	Type	Value
4,4' -Methylenediphenyl diisocyanate	ACGIH	TWA	0.005 ppm
	OSHA Table Z-1	Ceiling	0.2 mg/m3 0.02 ppm
1,1,1,2-Tetrafluoroethane	AIHA WEEL	TWA	4,240 mg/m3 1,000 ppm

Personal Protection

Eye/Face Protection: Use chemical goggles. Eye wash fountain should be located in immediate work area.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for

a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels

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below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure. Lethal concentrations may exist in areas with poor ventilation.

9. Physical and Chemical Properties

Physical State	Liquid.
Color	Brown
Odor	Musty
Odor Threshold	No test data available
Flash Point - Closed Cup	Not applicable
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Autoignition Temperature	No test data available
Vapor Pressure	240 psi @ 23 °C <i>Estimated</i> . Container is under pressure.
Boiling Point (760 mmHg)	No test data available.
Vapor Density (air = 1)	No test data available
Specific Gravity (H2O = 1)	1.24 <i>Estimated</i> .
Freezing Point	No test data available
Melting Point	No test data available
Solubility in water (by weight)	insoluble, reacts, evolution of CO2
pH	Not applicable
Decomposition Temperature	No test data available
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Evaporation Rate (Butyl Acetate = 1)	No test data available
Kinematic Viscosity	No test data available

10. Stability and Reactivity

Stability/Instability

Stable under recommended storage conditions. See Storage, Section 7.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Elevated temperatures can cause pressure buildup in closed containers due to the release of blowing agents. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture. Material reacts slowly with water, releasing

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carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction.

Incompatible Materials: Avoid contact with: Acids. Alcohols. Amines. Water. Ammonia. Bases. Metal compounds. Moist air. Strong oxidizers. Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate. Diisocyanates are not soluble in water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat. Avoid contact with metals such as: Aluminum. Zinc. Brass. Tin. Copper. Galvanized metals. Avoid contact with absorbent materials such as: Moist organic absorbents. Avoid unintended contact with polyols. The reaction of polyols and isocyanates generate heat.

Hazardous Polymerization

Can occur. Elevated temperatures can cause hazardous polymerization. Polymerization can be catalyzed by: Strong bases. Water.

Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials. Gases are released during decomposition.

11. Toxicological Information

Acute Toxicity

Ingestion

Single dose oral LD50 has not been determined. Estimated. LD50, Rat > 10,000 mg/kg

Skin Absorption

The dermal LD50 has not been determined. Estimated. LD50, Rabbit > 2,000 mg/kg

Inhalation

The LC50 has not been determined. Estimated. LC50, Aerosol, Rat > 490 mg/m³

Sensitization

Skin

Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

Respiratory

May cause allergic respiratory response. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Repeated Dose Toxicity

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Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Chronic Toxicity and Carcinogenicity

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Developmental Toxicity

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother. Based on information for component(s): 1,1,1,2-Tetrafluoroethane. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive Toxicity

No relevant information found.

Genetic Toxicology

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

12. Ecological Information

ENVIRONMENTAL FATE

Data for Component: **Diphenylmethane Diisocyanate, isomers and homologues**

Movement & Partitioning

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Persistence and Degradability

In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

Data for Component: **4,4' -Methylenediphenyl diisocyanate**

Movement & Partitioning

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Persistence and Degradability

In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

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Data for Component: 1,1,1,2-Tetrafluoroethane

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150).

Henry's Law Constant (H): 5.00E-02 atm*m3/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): 1.68 Estimated.

Partition coefficient, soil organic carbon/water (Koc): 97 Estimated.

Persistence and Degradability

1,1,1,2-Tetrafluoroethane (HFC-134a) has a stratospheric ozone depletion potential (ODP) of zero, relative to CFC 12 (ODP=1). Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
6.20E-15 cm3/s	1,700 d	Estimated.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
4 %	28 d	OECD 301D Test

Theoretical Oxygen Demand: 0.47 mg/mg

ECOTOXICITY

Data for Component: Diphenylmethane Diisocyanate, isomers and homologues

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Toxicity to Soil Dwelling Organisms

LC50, Earthworm Eisenia foetida, adult, 14 d: > 1,000 mg/kg

Data for Component: 4,4' -Methylenediphenyl diisocyanate

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Toxicity to Soil Dwelling Organisms

LC50, Earthworm Eisenia foetida, adult, 14 d: > 1,000 mg/kg

Data for Component: 1,1,1,2-Tetrafluoroethane

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

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LC50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 450 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 48 h, immobilization: 980 mg/l

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. Transport Information

DOT Non-Bulk

Proper Shipping Name: COMPRESSED GAS, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Hazard Class: 2.2 **ID Number:** UN1956

DOT Bulk

Proper Shipping Name: COMPRESSED GASES, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Hazard Class: 2.2 **ID Number:** UN1956

IMDG

Proper Shipping Name: COMPRESSED GASES, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Hazard Class: 2.2 **ID Number:** UN1956

EMS Number: F-C,S-V

Marine pollutant.: No

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ICAO/IATA

Proper Shipping Name: COMPRESSED GAS, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Hazard Class: 2.2 **ID Number:** UN1956**Cargo Packing Instruction:** 200

Passenger Packing Instruction: 200

Additional Information

Reportable quantity: 8,333 lb – MDI

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard Yes
Yes

Delayed (Chronic) Health Hazard

Fire Hazard No
Reactive Hazard Yes
Sudden Release of Pressure Hazard Yes

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Component	CAS #	Amount
4,4' -Methylenediphenyl diisocyanate	101-68-8	>= 30.0 - <= 60.0 %
Diphenylmethane Diisocyanate, isomers and homologues	9016-87-9	>= 60.0 - <= 100.0 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

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The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
4,4' -Methylenediphenyl diisocyanate	101-68-8	>= 30.0 - <= 60.0 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. Other Information

Recommended Uses and Restrictions

Component(s) for the manufacture of urethane polymers.

Revision

Identification Number: 1041164 / 1001 / Issue Date 12/16/2009 / Version: 1.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit

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TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Material Safety Data Sheet

The Dow Chemical Company

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The Dow Chemical Company encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

Polyurethane System - Polyol

COMPANY IDENTIFICATION

The Dow Chemical Company
2030 Willard H. Dow Center
Midland, MI 48674
USA

Customer Information Number: 800-258-2436

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 989-636-4400

Local Emergency Contact: 989-636-4400

2. Hazards Identification

Emergency Overview

Color: Yellow

Physical State: Liquid.

Odor: Characteristic

Hazards of product:

CAUTION! May cause eye irritation. May be harmful if inhaled. Vapor reduces oxygen available for breathing. May cause anesthetic effects. May cause central nervous system effects; may cause respiratory tract irritation. Isolate area. Keep upwind of spill. Contents under pressure.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause slight eye irritation. May cause slight temporary corneal injury.

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Skin Contact: Prolonged contact may cause slight skin irritation with local redness.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: Prolonged excessive exposure may cause adverse effects. In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. May cause respiratory irritation and central nervous system depression. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Signs and symptoms of excessive exposure may include: May cause lacrimation (tears). Salivation. Convulsions. Tremors. Increased activity (hyperactivity).

Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.

Effects of Repeated Exposure: Contains a component which is reported to be a weak organophosphate-type cholinesterase inhibitor. Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. Contains component(s) which have been reported to cause effects on the following organs in animals: Heart.

Birth Defects/Developmental Effects: Contains component(s) which, in laboratory animals, have been toxic to the fetus at doses nontoxic to the mother. Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the mother.

Reproductive Effects: In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals.

3. Composition Information

Component	CAS #	Amount
1,1,1,2-Tetrafluoroethane	811-97-2	>= 10.0 - <= 30.0 %
Glycerol propylene oxide polymer	25791-96-2	>= 10.0 - <= 30.0 %
Polyester polyol, aromatic	Not available	>= 10.0 - <= 30.0 %
Sucrose , propylene oxide polymer	9049-71-2	>= 10.0 - <= 30.0 %
Tris(1-chloro-2-propyl) phosphate	13674-84-5	>= 10.0 - <= 30.0 %
1,1,1,3,3 - Pentafluoropropane	460-73-1	>= 1.0 - <= 10.0 %
Triethyl phosphate	78-40-0	>= 1.0 - <= 5.0 %
Ethylene glycol	107-21-1	> 0.1 - < 1.0 %

4. First-aid measures

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Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Skin Contact: Wash skin with plenty of water.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. This material is a cholinesterase inhibitor. Treat symptomatically. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 5-10 minutes as needed. Monitor for hypotension, respiratory depression, and need for intubation. Consider second agent if seizures persist after 30 mg. If seizures persist or recur administer phenobarbital 600-1200 mg (adults) intravenous diluted in 60 ml 0.9% saline given at 25-50 mg/minute. Evaluate for hypoxia, dysrhythmia, electrolyte disturbance, hypoglycemia (treat adults with dextrose 100 mg intravenous). If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Emergency Personnel Protection: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

5. Fire Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

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Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical

resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Blowing agent vaporizes quickly at room temperature. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen halides.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Absorb with materials such as: Dirt. Sand. Sawdust. Collect in suitable and properly labeled containers. Wash the spill site with water. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. Handling and Storage

Handling

General Handling: Avoid contact with eyes. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. This material is hygroscopic in nature. Contents under pressure. Do not puncture or incinerate container. Do not enter confined spaces unless adequately ventilated. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Storage

Store under cover in a dry, clean, cool, well ventilated place away from sunlight.

Storage Period:

15 Months

Storage temperature:

24 °C

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8. Exposure Controls / Personal Protection
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Exposure Limits

Component	List	Type	Value
1,1,1,2-Tetrafluoroethane	AIHA WEEL	TWA	4,240 mg/m ³ 1,000 ppm
1,1,1,3,3 - Pentafluoropropane	AIHA WEEL	TWA	1,644 mg/m ³ 300 ppm
Ethylene glycol	ACGIH	Ceiling Aerosol.	100 mg/m ³

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields).

Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

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Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

9. Physical and Chemical Properties

Physical State	Liquid.
Color	Yellow
Odor	Characteristic
Odor Threshold	No test data available
Flash Point - Closed Cup	> 100 °C (> 212 °F) <i>Estimated.</i>
Flammability (solid, gas)	Not applicable to liquids
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Autoignition Temperature	No test data available
Vapor Pressure	Not applicable
Boiling Point (760 mmHg)	No test data available.
Vapor Density (air = 1)	No test data available
Specific Gravity (H2O = 1)	1.18 <i>Calculated</i>
Freezing Point	No test data available
Melting Point	No test data available
Solubility in water (by weight)	No test data available
pH	Not applicable
Decomposition Temperature	No test data available
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Evaporation Rate (Butyl Acetate = 1)	No test data available
Kinematic Viscosity	2,240 cSt <i>ASTM D4878</i>

10. Stability and Reactivity

Stability/Instability

Stable under recommended storage conditions. See Storage, Section 7.

Conditions to Avoid: Product can oxidize at elevated temperatures. Elevated temperatures can cause pressure buildup in closed containers due to the release of blowing agents. Generation of gas during decomposition can cause pressure in closed systems.

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Incompatible Materials: Avoid contact with oxidizing materials. Avoid contact with: Strong acids. Strong bases. Avoid unintended contact with isocyanates. The reaction of polyols and isocyanates generates heat.

Hazardous Polymerization

Will not occur by itself.

Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to:

Carbon dioxide. Alcohols. Ethers. Hydrocarbons. Hydrogen halides. Ketones. Polymer fragments.

11. Toxicological Information

Acute Toxicity

Ingestion

As product. Single dose oral LD50 has not been determined. Estimated. LD50, Rat > 2,000 mg/kg

Dermal

As product. The dermal LD50 has not been determined. Estimated. LD50, Rabbit > 2,000 mg/kg

Inhalation

As product. The LC50 has not been determined.

Serious eye damage/eye irritation

May cause slight eye irritation. May cause slight temporary corneal injury.

Skin corrosion/irritation

Prolonged contact may cause slight skin irritation with local redness.

Sensitization

Skin

No relevant information found.

Respiratory

No relevant information found.

Repeated Dose Toxicity

Contains a component which is reported to be a weak organophosphate-type cholinesterase inhibitor. Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. Contains component(s) which have been reported to cause effects on the following organs in animals: Heart.

Chronic Toxicity and Carcinogenicity

No relevant information found.

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Developmental Toxicity

Contains component(s) which, in laboratory animals, have been toxic to the fetus at doses nontoxic to the mother. Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the mother.

Reproductive Toxicity

In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals.

Genetic Toxicology

Genetic toxicity studies on tested components were predominantly negative. Contains component(s) which were negative in some animal genetic toxicity studies and positive in others.

12. Ecological Information

ENVIRONMENTAL FATE

Data for Component: 1,1,1,2-Tetrafluoroethane

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150).

Henry's Law Constant (H): 5.00E-02 atm*m3/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): 1.68 Estimated.

Partition coefficient, soil organic carbon/water (Koc): 97 Estimated.

Persistence and Degradability

1,1,1,2-Tetrafluoroethane (HFC-134a) has a stratospheric ozone depletion potential (ODP) of zero, relative to CFC 12 (ODP=1). Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
6.20E-15 cm3/s	1,700 d	Estimated.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
4 %	28 d	OECD 301D Test

Theoretical Oxygen Demand: 0.47 mg/mg

Data for Component: Glycerol propylene oxide polymer

Movement & Partitioning

Based on information for a similar material: Bioconcentration potential is low (BCF less than 100 or log Pow less than 3).

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Persistence and Degradability

For this family of materials: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Data for Component: Sucrose , propylene oxide polymer

Movement & Partitioning

No bioconcentration is expected because of the relatively high water solubility.

Persistence and Degradability

Based on information for a similar material: Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

Data for Component: Tris(1-chloro-2-propyl) phosphate

Movement & Partitioning

Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is low (Koc between 500 and 2000).

Henry's Law Constant (H): < 1.35E-05 atm*m3/mole; 25 °C Estimated.

Partition coefficient, n-octanol/water (log Pow): 2.59 Measured

Partition coefficient, soil organic carbon/water (Koc): 1,300 Estimated.

Bioconcentration Factor (BCF): 0.8 - 4.6; common carp (Cyprinus carpio); Measured

Persistence and Degradability

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
4.47E-11 cm ³ /s	0.24 d	Estimated.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
14 %	28 d	OECD 301E Test

Theoretical Oxygen Demand: 1.17 mg/mg

Data for Component: 1,1,1,3,3 - Pentafluoropropane

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is medium (Koc between 150 and 500).

Henry's Law Constant (H): 6.89E-02 atm*m3/mole; 25 °C Estimated.

Partition coefficient, n-octanol/water (log Pow): 1.35 Measured

Partition coefficient, soil organic carbon/water (Koc): 280 Estimated.

Persistence and Degradability

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Indirect Photodegradation with OH Radicals

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Rate Constant	Atmospheric Half-life	Method
2.97E-14 cm ³ /s	360 d	Estimated.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
8 %	28 d	OECD 301D Test

Theoretical Oxygen Demand: 0.60 mg/mg

Data for Component: Triethyl phosphate

Movement & Partitioning

Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Henry's Law Constant (H): 3.60E-08 atm*m³/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): 0.80 Measured

Partition coefficient, soil organic carbon/water (Koc): 48 Estimated.

Persistence and Degradability

Biodegradation under aerobic laboratory conditions is below detectable limits (BOD₂₀ or BOD₂₈/ThOD < 2.5%).

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
5.794E-11 cm ³ /s	0.18 d	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
0 %			

Theoretical Oxygen Demand: 1.58 mg/mg

Data for Component: Ethylene glycol

Movement & Partitioning

Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Henry's Law Constant (H): 8.05E-09 atm*m³/mole; 25 °C Estimated.

Partition coefficient, n-octanol/water (log Pow): -1.36 Measured

Partition coefficient, soil organic carbon/water (Koc): 1 Estimated.

Distribution in Environment: Mackay Level 1 Fugacity Model:

Air	Water.	Biota	Soil	Sediment
2.1 %	98 %	< 0.01 %	< 0.01 %	< 0.01 %

Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

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Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
8.32E-12 cm ³ /s	15 h	Estimated.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
> 94 %	28 d	OECD 301F Test
90 %	1 d	OECD 302B Test

Theoretical Oxygen Demand: 1.29 mg/mg

ECOTOXICITY

Data for Component: 1,1,1,2-Tetrafluoroethane

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 450 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 48 h, immobilization: 980 mg/l

Data for Component: Glycerol propylene oxide polymer

For this family of materials: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Data for Component: Sucrose , propylene oxide polymer

Based on information for a similar material: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Data for Component: Tris(1-chloro-2-propyl) phosphate

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, bluegill (*Lepomis macrochirus*), 96 h: 84 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 48 h, immobilization: 63 mg/l

Aquatic Plant Toxicity

EC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), biomass growth inhibition, 96 h: 47 mg/l

EC50, alga *Scenedesmus* sp., biomass growth inhibition, 72 h: 45 mg/l

Toxicity to Micro-organisms

EC50, OECD 209 Test; activated sludge, respiration inhibition, 3 h: 784 mg/l

Data for Component: 1,1,1,3,3 - Pentafluoropropane

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

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Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), static renewal, 96 h: > 100 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static, 48 h, immobilization: > 100 mg/l

Data for Component: Triethyl phosphate

Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).

Fish Acute & Prolonged Toxicity

LC50, Japanese medaka (*Oryzias latipes*), static, 48 h: > 500 mg/l

Data for Component: Ethylene glycol

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 18,000 - 46,000 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, water flea *Daphnia magna*, static, 48 h: 46,300 - 51,100 mg/l

Aquatic Plant Toxicity

EC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), biomass growth inhibition, 96 h: 9,500 - 13,000 mg/l

Toxicity to Micro-organisms

EC50, OECD 209 Test; activated sludge, respiration inhibition, 30 min: 225 mg/l

13. Disposal Considerations

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

14. Transport Information

DOT Non-Bulk

Proper Shipping Name: COMPRESSED GAS, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Product: FROTH-PAK(TM) Sealant 200HFC Kit

Issue Date: 03/15/10

Isocyanate SDS pages 2-14

Effective Date: 03/15/10

Polyol SDS pages 15-28

Hazard Class: 2.2 ID Number: UN1956

DOT Bulk

Proper Shipping Name: COMPRESSED GASES, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Hazard Class: 2.2 ID Number: UN1956

IMDG

Proper Shipping Name: COMPRESSED GASES, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Hazard Class: 2.2 ID Number: UN1956

EMS Number: F-C,S-V

ICAO/IATA

Proper Shipping Name: COMPRESSED GAS, N.O.S.

Technical Name: Fluorinated Hydrocarbons, Nitrogen

Hazard Class: 2.2 ID Number: UN1956 Cargo Packing Instruction: 200

Passenger Packing Instruction: 200

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the

responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	No
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	Yes

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Product: FROTH-PAK(TM) Sealant 200HFC Kit

Issue Date: 03/15/10

Isocyanate SDS pages 2-14

Effective Date: 03/15/10

Polyol SDS pages 15-28

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Component	CAS #	Amount
1,4-Dioxane	123-91-1	<= 0.016 %

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. Other Information

Revision

Identification Number: 1042556 / 1001 / Issue Date 03/09/2010 / Version: 1.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

Product: FROTH-PAK(TM) Sealant 200HFC Kit

Issue Date: 03/15/10




Isocyanate SDS pages 2-14

Effective Date: 03/15/10

Polyol SDS pages 15-28

The Dow Chemical Company urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Material Safety Data Sheet

NFPA 	HMIS <table border="1" data-bbox="470 157 755 294"><tr><td>Health Hazard</td><td>2*</td></tr><tr><td>Fire Hazard</td><td>4</td></tr><tr><td>Reactivity</td><td>1</td></tr></table>	Health Hazard	2*	Fire Hazard	4	Reactivity	1	PPE 	Transport Symbol 
Health Hazard	2*								
Fire Hazard	4								
Reactivity	1								

Issuing Date 27-Feb-2007

Revision Date 20-Aug-2012

Revision Number 4

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Touch 'n Seal® Gun Foam II Polyurethane Foam Sealant
Touch 'n Foam® Professional All-Purpose Foam Sealant

Recommended Use Insulation

Supplier Address Convenience Products, Division of Clayton Corp.
866 Horan Drive
Fenton, MO 63026-2416 USA
TEL: (636) 349-5333

Emergency Telephone Number Chemtel 1-800-255-3924
(813) 248-0585 outside US

2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Flammable gas. May cause flash fire.
Contents under pressure. Avoid temperatures above (120°F)
Irritating to eyes, respiratory system and skin.
May cause an allergic skin or respiratory reaction.
Vapor reduces oxygen available for breathing. Lower oxygen levels may cause anesthetic effects.
May cause drowsiness and dizziness.
Keep upwind of spill. Stay out of low areas.

Appearance Orange

Physical State Liquid Aerosol

Odor Faint hydrocarbon

Potential Health Effects

Principle Routes of Exposure Inhalation, Skin contact, Eye contact.

Acute Toxicity

Eyes
Skin

Irritating to eyes. May cause slight temporary corneal injury due to adhesive character.
Prolonged skin contact may cause moderate skin irritation with local redness. May cause sensitization by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Will bond to skin causing irritation upon removal.

Skin Absorption

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation

Excessive exposure may cause irritation to upper respiratory tract. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Inhalation of vapors in high concentration may cause shortness of breath (lung edema).

Respiratory Sensitization:

May cause allergy or asthma symptoms or breathing difficulties if inhaled. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest.

Ingestion	May be harmful if swallowed. May cause additional affects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Product may cure in the gastrointestinal tract and form an obstruction. May cause adverse cardiac effects, blood disturbances, and metabolic acidosis.
Chronic Effects	Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI / Polymeric MDI aerosols. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Chronic hydrocarbon abuse has been associated with irregular heart rhythms and potential cardiac arrest. Repeated or prolonged contact causes sensitization, asthma and eczemas.
Birth / Developmental Effects:	In laboratory animals, MDI/Polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses that were toxic to the mother.
Aggravated Medical Conditions	Allergies. Skin disorders. Respiratory disorders. Central nervous system. Preexisting eye disorders. Kidney disorders. Liver disorders.
Interactions with Other Chemicals	Irritants. Sensitizers. Epoxies. Use of alcoholic beverages may enhance toxic effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Flame Retardant	Proprietary	5-10
Polymethylene polyphenylene isocyanate	9016-87-9	10-30
Methylene bisphenyl isocyanate (MDI)	101-68-8	10-30
Polyol blend	Proprietary	10-30
Isobutane	75-28-5	5-10
Methylenediphenyl diisocyanate	26447-40-5	1-5
Propane	74-98-6	1-5
Dimethyl ether	115-10-6	5-10

4. FIRST AID MEASURES

General Advice	If emergency warrants call 911 or emergency medical service. Remove and wash soiled clothing before reuse.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Obtain medical attention, preferably from an ophthalmologist.
Skin Contact	Remove wet material from skin immediately with corn oil or nail polish that contains acetone. If irritation symptoms persist, call a physician. Remove contaminated clothing; wash before reuse. Foam will stick to skin; studies demonstrate that cleaning very soon after exposure is most effective. If foam dries on skin, apply generous amounts of petroleum jelly or lanolin, put on plastic gloves and wait 1 hour. With a clean cloth, firmly wipe off petroleum jelly and repeat process if necessary. Do not attempt to remove dried foam with solvents.
Inhalation	Move victim to fresh air. Apply artificial respiration if victim is not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
Ingestion	Call a physician or Poison Control Center immediately. May produce an allergic reaction. Do not induce vomiting unless directed to do so by medical personnel. Drink plenty of water. Never give anything by mouth to an unconscious person.

Notes to Physician Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. May cause respiratory sensitization or asthma-like symptoms. Respiratory symptoms, including pulmonary edema, may be delayed. Exposure may increase "myocardial irritability". If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Protection of First-Aiders Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Flammable Properties	Aerosol cans exposed to fire can rupture and spread fire to other areas. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas.
Flash Point	-104°C / -155°F (based on propellant.)
Suitable Extinguishing Media	Isolate fire and deny unnecessary entry. Use an extinguishing agent suitable for type of fire. Dry chemical, CO2, water spray, fog or regular foam. Stay upwind. Keep out of low areas where gas fumes can accumulate. Fire damaged cylinders should be handled with extreme caution and only by authorized personnel.
Explosion Data	
Sensitivity to mechanical impact	None
Sensitivity to static discharge	Yes.

Specific Hazards Arising from the Chemical

Propellant is flammable and will burn. Eliminate ignition sources. Ruptured cylinders may rocket. Chemicals other than propellant may burn but none ignite readily. Flash back possible over considerable distance. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Protective Equipment and Precautions for Firefighters

Wear self-contained breathing apparatus and protective suit.

NFPA	Health Hazard 2	Flammability 4	Stability 1	Physical and Chemical Hazards -
HMIS	Health Hazard 2*	Flammability 4	Stability 1	Personal Precautions -B

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Do not touch or walk through spilled material. Use appropriate safety equipment. Evacuate area. Keep personnel out of low areas and confined or poorly ventilated areas. Keep upwind of spill. Ensure adequate ventilation. Remove all sources of ignition. No smoking in area. Only trained and properly protected personnel must be involved in clean-up operations.
Methods for Containment	If possible, turn leaking containers so that gas escapes rather than liquid. Allow substance to evaporate. Contain spilled material if possible without risk. Absorb with materials such as: Sawdust. Dirt. Vermiculite. Collect in suitable and properly labeled open containers. Do not place in sealed containers. Curing foam gives off CO2. Wash what is left of the spill site with large quantities of water.
Methods for Cleaning Up	Attempt to neutralize the spilled material by adding suitable decontaminant solution: Formulation 1: Sodium carbonate 5 – 10%; liquid detergent 0.2 - 2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3 – 8%; liquid detergent 0.2 – 2%; water to make up to 100%. If ammonia formulation is used, use good ventilation to prevent vapor exposure. Sweep up and shovel into suitable containers for disposal.
Other Information	Ventilate the area. Curing foam gives off CO2. Do not put curing foam in a sealed drum.

7. HANDLING AND STORAGE

Handling	Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Ensure adequate ventilation. Take necessary action to avoid static electricity discharge (which might cause ignition of organic propellant vapors). Keep away from open flames, hot surfaces and sources of ignition. Do not Smoke. Avoid breathing vapors or mists. Contents under pressure. Do not puncture or incinerate cans. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Do not stick pin or any other sharp object into opening on top of can.
Storage	Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers. Keep in an area equipped with sprinklers. Keep out of the reach of children. Ideal storage temperature is 16-32 °C / 60 – 90 °F. Storage above 32 °C / 90 °F will reduce its shelf-life. Never keep at temperatures above 48.8°C / 120°F.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methylene bisphenyl isocyanate (MDI)	TWA: 0.005 ppm	Ceiling: 0.02 ppm Ceiling: 0.2 mg/m ³	75 mg/m ³
Isobutane	TWA: 1000 ppm	N/A	N/A
Propane	TWA: 2,500 ppm STEL 1,000ppm, 3,500 mg/m ³	8Hr TWA: 1000 ppm 1,800.0 mg/m ³	2100 ppm

NIOSH IDLH: Immediately Dangerous to Life or Health

Engineering Measures	Showers Eyewash stations Ventilation systems
Personal Protective Equipment	
Eye/Face Protection	Safety glasses with side-shields.
Skin and Body protection	Impervious gloves. Lightweight protective clothing.
Respiratory Protection	Atmospheric levels of PMDI should be maintained below the exposure guidelines. If exposure limits are exceeded or irritation is experienced, use a NIOSH/MSHA approved air-purifying respirator equipped with an organic vapor absorbent and a particle filter. For situations where the atmospheric levels exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplied respirator. Respiratory protection must be provided in accordance with current local regulations.
Hygiene Measures	When using, do not eat, drink or smoke. Maintain regular cleaning of equipment, work area and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Orange	Odor	Faint hydrocarbon
Odor Threshold	No information available	Physical State	Liquid Aerosol
pH	No information available		
Flash Point	-104°C / -155°F (based on propellant.)	Autoignition Temperature	Not applicable
Decomposition temperature	No data available	Boiling Point/Range	-42°C / -44°F
Melting Point/Range	No data available	Viscosity	No information available
Flammability Limits in Air	No data available	Explosion Limits	No data available
Specific Gravity	1.05	Water Solubility	Not Compatible
Solubility	Compatible.	Evaporation Rate	No data available
Vapor Pressure	No data available	Vapor Density	No data available
		VOC	1.29 (lbs/gal) 155 (g/l)

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition. Temperatures above 48.8 °C / 120 °F. Exposure to elevated temperatures can cause product to decompose.
Incompatible Products	Water. Alcohols. Strong bases. Strong oxidizing agents. Finely powdered metals.
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Nitrogen oxides (NO _x), Hydrogen cyanide.
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Sensitization - Skin

Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

Sensitization – Respiratory

May cause allergic respiratory response. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Flame Retardant	>2000 mg/kg (Rat)	>2000 mg/kg (Rat) 23700 mg/kg (Rabbit)	>5.22 mg/L (Rat) 4 h
Polymethylene polyphenylene isocyanate	49 g/kg (Rat)	9400 mg/kg (Rabbit)	490 mg/m ³ (Rat) 4 h
Methylene bisphenyl isocyanate (MDI)	9200 mg/kg (Rat)	5000 mg/kg (Rat)	
Polyol blend	64 mL/kg (Rat)	20 mL/kg (Rabbit)	
Isobutane			658 mg/L (Rat) 4 h

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylenediphenyl diisocyanate		6200 mg/kg (Rabbit)	0.369 mg/L (Rat) 4 h
Propane		658 mg/kg (Rat)	
Dimethyl ether			308.5 g/ m ³ (Rat) 4 h

Chronic Toxicity Repeated or prolonged exposure may cause central nervous system damage. Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Chronic hydrocarbon abuse has been associated with irregular heart rhythms and potential cardiac arrest. Repeated or prolonged contact causes sensitization, asthma and eczemas.

Carcinogenicity There are no known carcinogenic chemicals in this product.

Mutagenicity Contains no known mutagenetic chemicals.

Reproductive Toxicity This product does not contain any known or suspected reproductive hazards

Target Organ Effects Contains component(s) that have been reported to cause effects on the following organs in animals: Kidney, Liver, Bone marrow.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Fate

Movement & Partitioning: In the aquatic and terrestrial environment, PMDI movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Persistence and Degradability: In the aquatic and terrestrial environment, PMDI reacts with water forming predominantly insoluble polyureas that appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

Ecotoxicity effects:

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Flame Retardant	EC50 4.6 mg/L 72			LC50 3.8 - 5.5 mg/L 48 h
Methylenediphenyl diisocyanate	EC50 = 3230 mg/L 96 h			EC50 > 1000 mg/L 24 h
Dimethyl ether		LC50 (goldfish) 3677 mg/L, 96 h		LC50 1852 mg/L, 96 h

Chemical Name	Log Pow
Isobutane	2.88
Propane	2.3
Dimethyl ether	-0.18

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Should not be released into the environment. Dispose of in accordance with local regulations. Allow foam to cure before disposal.

Contaminated Packaging Dispose of in accordance with local regulations.

US EPA Waste Number D001

14. TRANSPORT INFORMATION

DOT

UN-No UN1950
Proper Shipping Name UN1950, Aerosols, flammable, 2.1, LTD QTY
Hazard Class 2.1
ERG Code Guide 127

TDG

UN-No UN1950
Proper Shipping Name Aerosols
Hazard Class 2.1
Description UN1950, Aerosols, 2.1

MEX

UN-No UN1950
Proper Shipping Name Aerosols
Hazard Class 2.1
Description UN1950, Aerosols, 2.1

ICAO

UN-No UN1950
Proper Shipping Name Aerosols
Hazard Class 2.1
Description UN1950, Aerosols

IATA

UN-No UN1950
Proper Shipping Name Aerosols, flammable
Hazard Class 2.1
ERG Code 10L
Description UN1950, Aerosols, flammable, 2.1, LTD QTY

IMDG/IMO

UN-No UN1950
Proper Shipping Name Aerosols
Hazard Class 2.1
EmS No. F-D, S-U
Description UN1950, Aerosols, Flammable, 2.1, LTD QTY

RID

UN-No UN1950
Proper Shipping Name Aerosols
Hazard Class 2
Classification Code 5A
Description UN1950, Aerosols, 2, RID
ADR/RID-Labels 2

ADR

UN-No UN1950
Proper Shipping Name Aerosols
Hazard Class 2
Classification Code 5A
ADR/RID-Labels 2

ADN

UN-No UN1950
Proper Shipping Name Aerosols
Hazard Class 2
Classification Code 5A
Special Provisions 63, 190, 191, 277, 913
Description UN1950, Aerosols, 2
Hazard Labels 2
Limited Quantity See SP277

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
CHINA	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

U.S. Federal Regulations

OSHA Hazard Communication Standard **This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29CFR 1910.1200.**

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals that are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values
Polymethylene polyphenylene isocyanate	9016-87-9	10-30	1.0
Methylene bisphenyl isocyanate (MDI)	101-68-8	10-30	1.0
Methylenediphenyl diisocyanate	26447-40-5	1-5	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	Yes
Reactive Hazard	No

Clean Water Act This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122)
CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Methylene bisphenyl isocyanate (MDI)	5000 lb	

U.S. State Regulations

California Proposition 65

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dimethyl ether	X	X	X		X
Propane	X	X	X		X
Isobutane	X	X	X		
Methylene bisphenyl isocyanate (MDI)	X	X	X	X	X

International Regulations

Mexico - Grade

Serious risk, Grade 3

The exposure limits values for 101-68-8 are listed under two synonyms:

Diphenylmethane diisocyanate - 0.02 ppm TWA; 0.2 mg/m³ TWA

Methylene bisphenyl isocyanate - 0.005 ppm TWA; 0.051 mg/m³ TWA

Chemical Name	Carcinogen Status	Exposure Limits
Methylene bisphenyl isocyanate (MDI)		Mexico: TWA= 0.2 mg/m ³ Mexico: TWA= 0.02 ppm
Diphenylmethane diisocyanate		Mexico: TWA= 0.005 ppm Mexico: TWA= 0.051 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

- A Compressed gases
- B5 Flammable aerosol
- D2B Toxic material



Chemical Name	NPRI
Methylene bisphenyl isocyanate (MDI)	X

Legend:

NPRI - National Pollutant Release Inventory
WHMIS – Workplace Hazardous Materials Information System
TSCA – Toxic Substance Control Act
DSL – Domestic Substance List
EINECS – European Inventory of Existing Commercial Chemical Substances
ENCS – Japan, Existing and New Chemical Substances
KECL- Korean Existing Chemical List
PICS – Philippine Inventory of Chemicals and Chemical Substances
AICS – Australian Inventory of Chemical Substances
TDG – Transportation of Dangerous Goods Act
ICAO – International Civil Aviation Organization
IATA – International Maritime Dangerous Goods Code
IMDG – International Maritime Dangerous Goods Code

16. OTHER INFORMATION

Issuing Date 27-Feb-2007
Revision Date 20-Aug-2012
Revision Note Revised DOT section

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS



TECHNICAL BULLETIN

STRUCTURAL BOARD ASSOCIATION

Representing the OSB Industry

25 Valleywood Drive, Unit 27, Markham, Ontario, Canada L3R 5L9

Tel: 905-475-1100 • Fax: 905-475-1101 • E-mail: info@osbguide.com • website: http://www.osbguide.com

GENERIC ORIENTED STRAND BOARD MATERIAL SAFETY DATA SHEET

PRODUCT IDENTIFICATION

Product Name: Oriented Strand Board

Synonyms: OSB, Waferboard, Rim Board, Web Stock, Proprietary Brand Names

Note: Proprietary products may have slightly different ingredients or characteristics. Please check with manufacturer.

HAZARDOUS INGREDIENTS

Principal Hazardous Component (Common Name or Chemical)	Quantity (Percent)	Unit	ACGIH TLV		OSHA PEL ¹	
			TWA	STEL	TWA	STEL
Wood	85 - 97					
Softwood or Hardwood Total Dust		(mg/m ³)			15 ²	10 ³
Wood Dust - Not Preservative Treated:						
Inhalable - Western Red Cedar		(mg/m ³)	0.5	none		
Inhalable - All Other Species		(mg/m ³)	1	none		
Resin Solids:						
- Phenol Formaldehyde ⁴	0 - 15	ppm	0.3 ⁵	none	0.75	2
- Polymeric Diphenylmethane Diisocyanate ⁶	0 - 15	ppm	none	none	none	none
Paraffin Wax	0 - 2	(mg/m ³)	2	none	2	none

- Notes:
1. Values for State PEL (or Province OEL) may be more restrictive.
 2. Respirable fraction is limited to 5 mg/m³.
 3. Recommended exposure limits based on 1989 OSHA PELs: TWA 5 mg/m³ and STEL 10 mg/m³ for all softwoods and hardwoods, except western red cedar; TWA 2.5 mg/m³ for western red cedar.
 4. Product contains less than 0.05% free formaldehyde (CAS RN 50-00-0). Phenol formaldehyde resin is used in the surface material and/or centre material.
 5. Ceiling value.
 6. This ingredient is the polymerized form of MDI binder (CAS RN 101-68-8). There are no detectable MDI monomers in the product as purchased. MDI binder is generally used in the centre material only.

PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling point (degrees Centigrade)	n/a
Specific gravity (water = 1.0)	0.5 - 0.7
Percent volatile (by volume)	0
Evaporation rate	n/a
Vapour pressure (mm of Hg)	n/a
Vapour density	n/a
Solubility in Water (% by weight)	< 0.1%

Appearance and Odour - brown panel consisting of a ligno-cellulosic matrix of interlocking wood fibres with slight aromatic odour (stronger when wet). The wood component may consist of the following species: alder, aspen, beech, birch, cottonwood, eastern red cedar, fir, gum, hemlock, hickory, maple, oak, pecan, pine, poplar, spruce, yellow cypress, walnut, and/or western red cedar.

FIRE AND EXPLOSION DATA

Flashpoint	n/a
Flammable Limits	Lower n/a Upper n/a
Fire Extinguishing Media	Water, CO ₂ , sand
Auto Ignition Temperature	Variable, typically 400-500 °F (200-260 °C)
NFPA Rating (scale 0-4)	Health =1; Fire=1; Reactivity=0

Normal Fire-Fighting Procedures Equipment:

Determined by surrounding fire. Use a water spray to wet down panels and any dust to prevent ignition. Remove burned material to open area after fire is extinguished.

Usual Fire or Explosion Hazard: Fine panel dust in an airborne concentration greater than 40 g/m³ of air may explode if the dust cloud contacts a source of ignition.

REACTIVITY DATA

It is a stable product, however excess moisture conditions and open flame should be avoided. It is incompatible with oxidizing agents and drying oil. Good housekeeping procedures and routine disposal of panel dust is suggested. When burned it releases carbon monoxide, polycyclic aromatic hydrocarbons, carbon dioxide, aldehydes and other toxic fumes and gases. Hazardous polymerization will not occur.

HEALTH HAZARDS

Sign and Symptoms of Exposure

1. **Acute Overexposure:** Panel dust may be a mechanical irritant to eyes. Excessive concentration may cause deposit in nasal passages resulting in rhinorrhea, dry cough, wheezing, sinusitis.

2. **Chronic Overexposure:** Wood dust, depending on species, may cause dermatitis on prolonged, repetitive contact; may cause respiratory sensitisation and/or irritation. Prolonged exposure to wood dust has been reported by some observers to be associated with nasal cancer. IARC classifies wood dust as a Group 1 - carcinogen to humans. This classification is based on IARC's evaluation of increased risk in the occurrence of adeno-carcinomas of the nasal cavities and paranasal sinuses associated with the exposure to wood dust. IARC did not find sufficient evidence to associate cancers of the oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon, or rectum with exposure to wood dust.

Note: These products are manufactured using a phenol-formaldehyde thermoset resin and/or polyurethane binder. Maximum indoor formaldehyde levels associated with freshly manufactured panels are similar to outdoor background levels in urban areas (less than 0.1 ppm) and levels decrease through time as the panels age.

Medical Conditions Generally Aggravated by Exposure: Individuals with predisposing respiratory disease - asthma, chronic bronchitis - may have difficulty working around airborne particulates including dust.

Product Listed as Carcinogen - Formaldehyde

NTP Yes - Reasonably anticipated to be a human carcinogen

IARC Monographs Yes Group 1 - Carcinogenic to humans

OSHA No - Regulated formaldehyde gas, potential carcinogen for exposures exceeding 0.5 ppm

Formaldehyde has been classified as a known carcinogen or probable carcinogen by NTP, IARC, and OSHA. A working group of IARC has determined that there is sufficient evidence that formaldehyde causes nasopharyngeal cancer in humans, a rare form of cancer in developed countries.

Product Listed as Carcinogen - Wood Dust

NTP Yes - Known to be a human carcinogen

IARC Monographs Yes Group 1 - Carcinogenic to humans

OSHA No

SPECIAL PROTECTION INFORMATION

Respiratory Protection: NIOSH approved dust respirator recommended under dusty conditions.

Ventilation: Local exhaust- Panel dust should be collected at source, so that exposure limits are met.

Protective Gloves: Leather, cloth or canvas recommended to minimize slivers or irritation when handling.

Eye Protection: Safety glasses or goggles recommended when machining.

Other Protective Clothing or Equipment: Follow good hygiene and housekeeping practices. Clean up areas where dust settles to avoid excessive accumulation of this combustible material. Minimize blowdown or other practices generating high dust concentrations.

EMERGENCY AND FIRST AID PROCEDURES

1. **Inhalation:** Remove to fresh air. If persistent irritation, severe coughing, breathing difficulties or rash occur, seek medical advice. (Primary route of exposure is inhalation).

2. **Eyes:** Panel dust may mechanically irritate the eye, resulting in redness or watering. Flush with water to remove dust particles. If irritation persists, seek medical attention.

3. **Skin:** Various species of wood dust can elicit allergic contact dermatitis in sensitized individuals after repetitive contact. If a rash, or persistent irritation or dermatitis occurs, seek medical advice before working where panel dust is present.

4. **Ingestion:** n/a

SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be taken in Handling and Storage:

No special handling precautions are required. Panels are combustible. Keep in cool, dry place away from open flame and other sources of ignition.

Other Precautions: If this product is used in a process which generates dust levels in excess of the allowable exposure limit(s) for wood dust, a NIOSH approved dust respirator and goggles should be worn.

Due to the explosive potential of wood dust when suspended in air, precautions should be taken to prevent sparks or other ignition sources in ventilation systems. Use of totally enclosed motors is recommended (or may be warranted) if process generates excessive levels of wood dust.

Steps to be taken in Case Material is Released or

Spilled: Not applicable for product in purchased form. Panel dust may be vacuumed or shovelled for recovery or disposal. Avoid dusting conditions. Provide good ventilation where dusting is possible. Use NIOSH approved dust respirator and goggles where ventilation is not possible.

Waste Disposal Methods: If disposed or discarded in its purchased form, incineration is preferable. Dry land disposal may be acceptable. It is however the user's responsibility to determine at time of disposal whether the product meets federal, state, provincial or local regulations.

GLOSSARY

ACGIH	American Conference of Governmental Industrial Hygienists
C	degree Centigrade
CAS RN	Chemical Abstracts Service Registry Number (American Chemical Society)
F	degree Fahrenheit
IARC	International Agency for Research on Cancer
mg/m ³	milligrams per cubic meter of air
n/a	not applicable
NFPA	National Fire Protection Association (US)
NIOSH	National Institute of Occupational Safety and Health (US)
NTP	National Toxicology Program (US)
OEL	occupational exposure limit
OSHA	Occupational Safety and Health Administration (US)
PEL	permissible exposure level
ppm	parts per million in air
STEL	short term exposure limit (15 minutes)
TLV	threshold limit value
TWA	8 hour time weighted average

Important: The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. SBA makes no warranty, express or implied, concerning the accuracy or completeness of the information and data herein and will not be liable for claims relating to any party's use of a reliance on the information and data contained herein. It is expected by SBA that the user of this information will confirm its accuracy and completeness with the supplier and/or manufacturer of the oriented strand board or waferboard product being purchased and/or used.

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MSDS Name: QB-300 MULTIPURPOSE CONSTRUCTION ADHESIVE
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SECTION I - PRODUCT AND COMPANY INFORMATION

Product Name: QB-300 MULTIPURPOSE CONSTRUCTION
ADHESIVE
HMIS Hazard Rating: Health: 1 Fire: 3 Reactivity: 0 PPE: B

Company Identification: HENKEL CONSUMER ADHESIVES
7405 PRODUCTION DRIVE
MENTOR OH 44060

Contact (24 hour): Customer Affairs (800)321-0253
Information phone/Fax: (440) 255-8900 / (440) 974-8358
CHEMTREC Emergency (24 hour): (703) 527-3887 (International)
(800) 424-9300
in Canada CANUTEC 613-996-6666

Product Class ADHESIVE
Trade Name PRO-SERIES
Product Code 30011,30029

SECTION II - INGREDIENT AND HAZARD INFORMATION

Hazardous Ingredient Name	CAS Number	Percent	TSCA
Light Hydrotreated Naphtha	64742-49-0	15 - 25	Y

Ingredient Notes:
Remaining ingredients are not considered OSHA hazardous.

SECTION III - PHYSICAL AND CHEMICAL PROPERTIES

Form: Tan, non-sag mastic
Solubility (in water): insol.
pH Value, +/- .3: Not Applicable
Boiling Range: 135.°F - 165.°F (57.22°C - 73.89°C)
Vapor Pressure (mmHg): over 99.@ 68.°F (20.°C)
Evaporation Rate: 4.4 times Faster than n-Butyl Acetate

Vapor Density: Heavier than air

% Volatile, Weight 20.%
% Volatile, Volume 35.%
Specific Gravity: 1.36904
VOC (less H2O or exempt) 280 g/l (20%)

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NOTE:

*BOIL RANGE, EVAP RATE, VAPOR DENSITY AND PRESSURE FOR SOLVENT ONLY!

SECTION IV - FIRE FIGHTING MEASURES (Flash,UEL,LEL for solvent only)

Flammability Class: IB
Flash Range: approx.
0.°F - 5.°F (-17.78°C - -15.°C)
Tag Closed Cup
Explosive Range (LEL/UEL): 1.%, 6.7%

EXTINGUISHING MEDIA:

Carbon Dioxide---Dry Chemical---Foam
Use water fog to cool material in vicinity of fire.

SPECIAL FIRE-FIGHTING PROCEDURES:

Use self-contained breathing apparatus with full facepiece
operated in pressure demand with full protective equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Any closed container may rupture when exposed to extreme heat.
Solvent vapors are heavier than air and travel along the ground.
Vapors given off are flammable and may be ignited in air explosively.

SECTION V - HEALTH HAZARD DATA

ROUTES OF ENTRY:

ENTRY THROUGH

Inhalation? YES | Skin? YES | Ingestion? YES

Contains N-Hexane (110-54-3) in trace quantities, which can
cause peripheral neuropathy & nervous system damage.

CARCINOGENICITY...

NTP? N/E | IARC Monographs? N/E | OSHA? NO

EFFECTS OF OVEREXPOSURE

Eyes: Can cause irritation, redness, tearing and blurred vision.

Skin: Prolonged or repeated contact can cause moderate
irritation, drying of the skin, and dermatitis.

Inhalation: Excessive inhalation of vapors can cause respiratory
irritation, headache, drowsiness and fatigue. High
concentrations of vapors are anesthetic and may cause
central nervous system effects such as dizziness.

Ingestion: Can cause gastrointestinal irritation, nausea,
vomiting and diarrhea.

FIRST AID MEASURES

Eyes: Flush eyes gently with water for at least 15 minutes
lifting eyelids occasionally; get prompt medical attention

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Skin: Wash thoroughly with soap and water; apply a mild skin cream.
Remove contaminated clothing.
Inhalation: Move affected person to fresh air; if breathing is
difficult, administer oxygen; if breathing has stopped,
give artificial respiration. Get medical attention.
Ingestion: DO NOT INDUCE VOMITING! Get immediate medical attention.

CHRONIC HAZARDS

NOTICE: Reports have associated repeated and prolonged
occupational overexposure to solvents with permanent brain,
nervous system, liver or kidney damage or may cause cardiac
arrhythmia. INTENTIONAL misuse of this product by
deliberately inhaling its vapors may be harmful or fatal.

SECTION VI - STABILITY AND REACTIVITY

Stability: This product is stable
Hazardous Polymerization: Hazardous polymerization will not occur

INCOMPATIBILITY:

Keep away from strong oxidizing agents.

CONDITIONS TO AVOID:

Keep away from heat, spark, open flames and any ignition source.

HAZARDOUS DECOMPOSITION PRODUCTS:

Will produce fumes and smoke containing carbon monoxide and
dioxide under fire conditions.

SECTION VII - ACCIDENTAL RELEASE AND DISPOSAL MEASURES:

STEPS TO BE TAKEN IN CASE OF SPILL:

Eliminate all ignition sources. Ventilate confined areas.
(Open windows and doors). Wear appropriate protective clothing.
Cover with absorbent. Scoop into sealable safety container.

WASTE DISPOSAL METHOD:

Dispose of following local, state, and federal regulations.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Table with 5 columns: ACGIH TLV, ACGIH TLV-C, ACGIH STEL, OSHA STEL, OSHA PEL. Row 1: Light Hydrotreated Naphtha, 400.00 PPM, N/est, N/est, N/est, 400.00 PPM.

RESPIRATORY PROTECTION:

If TLV of the product is exceeded, a NIOSH/MSHA jointly approved
air supply respirator is advised in the absence of proper

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ventilation. OSHA regulations also permit the use of other types of NIOSH/MSHA respirators under specified conditions. (See your safety equipment supplier for more information)

VENTILATION:

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV. Ventilate during application and curing of this product.

PROTECTIVE CLOTHING:

Rubber gloves should be worn where skin contact is likely. Wear impervious clothing and shoes.

EYE PROTECTION:

Chemical goggles or safety glasses should be worn.

HANDLING AND STORAGE PRECAUTIONS:

Keep away from heat, spark and flame. Keep out of reach of children. Keep container closed while not in use. Do not cut or burn recepticals that have contained a solvent based product. Do not reuse this container. Use only in a well ventilated area.

N/A=NOT APPLICABLE N/AV=NOT AVAILABLE N/E, N/est=NOT ESTABLISHED

SECTION IX - TRANSPORT INFORMATION: (not all sizes available)

GROUND TRANSPORT (DOT) - DOMESTIC

Units less than 5L (1.3 gallons liquid) i.e.10oz, 28oz, 1 gal.

Proper Shipping Name: CONSUMER COMMODITY
Classification: ORM-D
DOT Label Required: ORM-D
Shipping Document: CONSUMER COMMODITY, ORM-D
ERG Code: 171

Units GREATER than 5L i.e. 5 gal. pail

Proper Shipping Name: ADHESIVE
Classification: CLASS 3
DOT Label Required: Flammable Liquid, UN1133, Class 3
Shipping Document: ADHESIVE,3,UN1133, PGIII,
for 50 gal. drum use PG II
ERG Code: 128

AIR TRANSPORT (DOT) - DOMESTIC

Units less than 5L (1.3 gallons liquid) i.e.10oz,28oz, 1gal.

Proper Shipping Name: CONSUMER COMMODITY
Classification: ORM-D
DOT Label Required: ORM-D-AIR

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Shipping Document: Consumer Commodity, ORM-D
ERG Code: 171

Units GREATER than 5L i.e. 5 gal. pail
Proper Shipping Name: ADHESIVE
Classification: Class 3
DOT Label Required: Flammable Liquid, UN 1133, Class 3
Shipping Document: ADHESIVE, 3, UN1133, PG III,
for 50 gal. drum use PG II
ERG Code: 128

AIR TRANSPORT (IATA) - INTERNATIONAL

Units less than 5L (1.3 gallons liquid) i.e.10oz,28oz, 1 gal.

Proper Shipping Name: CONSUMER COMMODITY
Classification: class 9
Label Required: ID8000
Shipping Document: Consumer Commodity,9, ID8000
ERG Code: 9L

Units GREATER than 5L i.e. 5 Gal. pail, 50 gal.drum
Proper Shipping Name: ADHESIVE
Classification: Class 3
Label Required: Flammable Liquid, UN 1133, Class 3
Shipping Document: ADHESIVE, 3, UN1133, PGIII,
for 50 gal. drum use PG II
ERG Code: 3L

MARINE - OCEAN TRANSPORT (IMDG)

Units less than 5L (1.3 gallons liquid) i.e.10oz,28oz, 1 gal.

Proper Shipping Name: ADHESIVE
Classification: Class 3
Label Required: Flammable Liquid, UN1133, Class 3, Ltd. Qty.
(on Ocean container only, not required on cartons)
Shipping Document: ADHESIVE,3, UN1133, PG III, LTD.QTY.
EMS Code: F-E, S-D

Units GREATER than 5L i.e. 5 gal. pail, 50 gal drum
Proper Shipping Name: ADHESIVE
Classification: Class 3
Label Required: Flammable Liquid, UN 1133, Class 3
Shipping Document: ADHESIVE, 3, UN1133, PGIII,
for 50 gal. drum use PG II
EMS Code: F-E, S-D

SECTION X - REGULATORY INFORMATION:

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SARA Section 311/312 Hazard Categories met: Fire Hazard,
Immediate (Acute) and Delayed (Chronic) Health Hazards.

Chemical ingredients are listed on the TSCA inventory.

SARA Section 313 toxic chemicals: NONE above the de minimis
reporting thresholds.

California PROP.65 Chemicals: none known

DISCLAIMER:

The information contained herein is based on data available as of the date of preparation of this MSDS and which we believe to be reliable. However, no warranty is expressed or implied regarding the accuracy of the data. We shall not be responsible for the use of this information, or of any product, method, apparatus mentioned, and user must make his own investigation to determine the suitability of the information or products for his particular purpose, for the protection of the environment, and the health & safety of the users of this material.