

# SAFETY DATA SHEET

LOW PRESSURE POLYURETHANE FOAM SEALANTS (HC)



## SECTION 1- PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product Identifier

Product Name: HandiFoam® HC Gun Foam, HandiFoam® HC Straw Foam, HandiFoam® Fireblock, HandiFoam® Fireblock West, HandiFoam® Black, HandiFoam® Extreme, HandiFoam® Window & Door, HandiFoam® Window & Door West and HandiFoam® Extreme Window & Door Polyurethane Foam Sealants

SDS ID Number **A16186**

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

General Use One Component Polyurethane Foam Sealant

Uses advised against

### 1.3 Details of the supplier and of the safety data sheet

Manufacturer ICP Building Solutions Group  
2775 Barber Road  
Norton, Ohio 44203  
In Ohio: 330-753-4585; 1-800-321-5585 (Monday-Friday 8:00am-5:00pm EST)

### 1.4 Emergency telephone numbers

In the U.S.A CHEMTEL 1-800-255-3924

International Emergency CHEMTEL 1-813-248-0585

## SECTION 2- HAZARDS IDENTIFICATION

### 2.1 Classification of substance or mixture

Product definition: Mixture

Classification: Flammable Aerosol- Category 1  
Gases Under Pressure- Compressed Gas  
Acute Toxicity Inhalation- Category 4  
Skin Irritation- Category 2  
Serious Eye Irritation- Category 2A  
Respiratory Sensitizing- Category 1  
Skin Sensitization – Category 1  
Effects on or via lactation  
Specific Target Organ Toxicity SE 3  
Specific Target Organ Toxicity RE 2

### 2.2 Label elements

Hazard Symbols:



Signal Word:

**DANGER**

Hazard Statements:

H222- Extremely flammable aerosol  
H280- Contains gas under pressure; may explode if heated  
H315- Causes Skin Irritation  
H317- May cause an allergic skin reaction  
H319- Causes Serious Eye Irritation  
H332- Harmful if inhaled  
H334- May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H335- May cause respiratory irritation  
H362- May cause harm to breastfed children  
H373- May cause damage to organs through prolonged or repeated exposure

Prevention:

P102- Keep Out of Reach of Children  
P202- Do not handle until all safety precautions have been read and understood  
P210- Keep away from heat/sparks/open flames/hot surfaces-No Smoking  
P211- Do not spray on an open flame or other ignition source  
P251- Pressurized Container: Do not pierce or burn, even after use  
P261- Avoid breathing vapors or fumes  
P262- Do not get in eyes, on skin, or on clothing  
P264- Wash hands and other skin areas exposed to material thoroughly after handling  
P271- Use only outdoors or in a well-ventilated area  
P280- Wear protective gloves, protective clothing and eye protection

**Response:** P285- In case of inadequate ventilation wear respiratory protection  
P302+P352+P333+P313 IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention  
P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305+P351+P338- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P314- Get medical advice if you feel unwell.  
P342+P311- If experiencing respiratory symptoms: Call a POISON CENTER or doctor  
P381- Eliminate all ignition sources if safe to do so

**Storage:** P403+P405- Store in a well-ventilated place. Store locked up.  
P410- Protect from sunlight  
P412- Do not expose to temperatures exceeding 50°C/122°F.

**Disposal:** P501 Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

### SECTION 3- COMPOSITION/INFORMATION ON INGREDIENTS

| % by Weight | Ingredient  | CAS No.       |
|-------------|---|---------------|
| 40-70       | Urethane Pre-Polymer Blend (Non-Hazardous Polyol Blend) | Not available |
| 10-30       | Alkanes, C14, chloro                                    | 198840-65-2   |
| 5-10        | 4,4' Diphenylmethane diisocyanate (MDI)                 | 101-68-8      |
| 5-10        | Polymethylene polyphenyl isocyanate (PMDI)              | 9016-87-9     |
| 3-7         | Isobutane   | 75-28-5       |
| 3-7         | Dimethyl ether  | 115-10-6      |
| 1-5         | Propane   | 74-98-6       |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to the health or the environment and hence require reporting in this section.

### SECTION 4- FIRST AID MEASURES

#### 4.1 Description of first aid measures

**Eye:** Immediately flush eyes with large amounts of water for at least 15 minutes, holding the eyes open with fingers and occasionally lifting the upper and lower lids. Use lukewarm water if possible. If present and easy to do so, remove contact lenses, If irritation persists, get medical attention.

**Skin:** In case of contact, immediately flush skin with plenty of soap and water. Foam will stick to skin, gently wipe product from skin with a damp cloth and wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation persists.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention.

**Ingestion:** If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention.

#### 4.2 Most important symptoms and effects, both acute and delayed

See Section 11.1. Information on toxicological effects.

#### 4.3 Notes to the physician

Symptoms may not appear immediately. If case of an accident or if you feel unwell, seek medical advice immediately (show label or SDS if possible).

### SECTION 5- FIRE FIGHTING MEASURES

#### 5.1 Extinguishing media

**Suitable methods of extinction:** Use dry chemical, carbon dioxide, foam, Halon 1211 and water spray or fog.

**Unsuitable methods of extinction:** Do not use water jets and high-pressure water as these may spread the fire

**5.2 Special hazards arising from the substance or mixture**

Contains flammable propellant. Eliminate all ignition sources. Containers may explode due to buildup of pressure when exposed to extreme heat. Aerosol cans exposed to fire or high temperature can rupture and rocket. Cured foam will burn in the presence of heat, oxygen and an ignition source.

**5.3 Advice to firefighters**

**Products of combustion:** May include and are not limited to: oxides of carbon, oxides of nitrogen, hydrogen fluoride, and traces of hydrogen cyanide.

Keep upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to keep fire-exposed containers cool. Containers may explode if heated.

**SECTION 6- ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Eliminate sources of ignition.

**6.2 Environmental precautions**

Do not allow to enter sewers, drains, or waterways

**6.3 Methods and materials for containment and cleaning up**

**Method for containment:** Uncured product is very sticky; carefully remove the bulk of the foam by scraping it up and then immediately remove the residue with a rag and solvent such as Handi-Cleaner, mineral spirits, acetone (nail polish remover), paint thinner, etc. Once the product is cured it can only be removed mechanically by scraping, buffing, etc. Use appropriate PPE.

**Methods for cleaning up:** Scoop up material and place in a disposal container. Dispose of as plastic waste in accordance with all applicable guidelines and regulations. Vapors can accumulate in low areas. Provide ventilation

**6.4 Reference to other sections**

For indications about waste treatment & disposal, see Section 13

See Section 7 for information about safe handling.

**SECTION 7- HANDLING AND STORAGE****7.1 Precautions for safe handling**

Keep away from sources of ignition- No smoking. Do not spray on an open flame or other ignition source. Pressurized container: do not pierce or burn, even after use. Container may explode if heated. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray. Do not swallow. Use only in a well-ventilated area or outdoors. Avoid welding or other "hot work" in the vicinity of exposed cured foam. When using do not eat, drink or smoke. (See section 8)

General hygiene advice: Launder contaminated clothing before reuse. Wash hands before eating, drinking or smoking.

**7.2 Conditions for safe storage including any incompatibilities**

Store in a dry place. Ideal use temperature is 65°F to 80°F (18°C to 27°C). Do not expose aerosol cans to open flame or temperatures above 122°F (50°C). Excessive heat can cause premature aging of components resulting in a shorter shelf life. Storage below 55°F (12.7°C) may affect foam quality if chemicals are not warmed to room temperature before using. Protect containers from physical abuse. Keep containers upright. **Keep away from children.**

**7.3 Other**

NFPA 30B Manufacture and Storage of Aerosol Products- Aerosol Level II

**SECTION 8- EXPOSURE CONTROLS/ PERSONAL PROTECTION****8.1 Control Parameters**

| CAS No.  | Ingredient                              | OSHA-PEL TWA                               | ACGIH-TLV   | NIOSH  | CA AB OEL<br>CA BC OEL<br>CA ON OEL<br>CA QC OEL   |
|----------|---|--|---|--|--|
| 101-68-8 | 4,4'<br>Diphenylmethane<br>diisocyanate | 0.02 PPM; 0.2<br>mg/m <sup>3</sup> Ceiling | 0.005 ppm; 0.051 mg/m <sup>3</sup><br>(8 hours) TWA | 0.005 ppm; 0.050<br>mg/m <sup>3</sup> TWA 0.02<br>ppm; 0.2 mg/m <sup>3</sup><br>CEIL | AB- 0.05 mg/m <sup>3</sup> 0.005 ppm<br>BC- 0.005 ppm TWA; 0.01 ppm C<br>ON- 0.005 ppm TWA 0.02 ppm C<br>QC- 0.051 mg/ m <sup>3</sup> 0.005 ppm<br>TWAEV |
| 75-28-5  | Isobutane                               |  | 1,000 ppm TWA                                       | 800 ppm; 1,900<br>mg/m <sup>3</sup> TWA  | AB- 1,000 ppm TWA<br>BC- 1,000 ppm TWA<br>ON- 1,000 ppm TWA  |
| 115-10-6 | Dimethyl ether                          | 1,000 ppm<br>(Dupont AEL)                  |   |  | BC- 1,000 ppm TWA<br>ON- 1,000 ppm TWA   |
| 74-98-6  | Propane                                 | 1,000 ppm; 1,800<br>mg/m <sup>3</sup> TWA  | 1,000 ppm; 1,800 mg/m <sup>3</sup><br>TWA           | 1,000 ppm; 1,800<br>mg/m <sup>3</sup> TWA  | AB-1,000 ppm TWA<br>BC-1,000 ppm TWA<br>QC- 1,800 mg/m <sup>3</sup> 1,000 ppm<br>TWAEV   |

**8.2 Exposure Controls:**

**Engineering measures:** Use ventilation adequate to keep exposures below recommended exposure limits.

**Eye/face Protection:** Wear protective safety glasses with side shields or goggles.

**Hand Protection:** Use chemically resistant gloves (i.e. Nitrile gloves). Nitrile/butadiene rubber, butyl rubber, polyethylene, PVC (vinyl), or neoprene gloves are also effective. Glove selection should consider potential body reactions to certain materials and manufacturer's instructions for use. Break through time of selected gloves must be greater than the intended use period.

**Other Protective Equipment:** Use clothing that protects against dermal exposure. Appropriate protective clothing varies depending on the potential for exposure. To ensure proper skin protection, wear PPE in such a manner that no skin is exposed.

**Respiratory Protection:** If atmospheric levels are expected to exceed the exposure levels, use a NIOSH approved air purifying respirator equipped with an organic vapor cartridge and particulate filter. If atmospheric levels exceed 10 times the TLV or PEL level for which an air-purifying respirator is effective, use a powered air purifying respirator (PAPR). The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134).

**Hygiene Measures:** An eye wash station or portable eye wash station should be in the area. Wash hands thoroughly after use, before eating, drinking or using the lavatory. Employees/Users should be educated and trained in the safe use and handling of this product.

**SECTION 9- Physical and chemical properties**

| <b>9.1 Information on basic physical and chemical properties</b> |   |
|--|---|
| General Physical Form  | Viscous liquid which forms off-white to yellowish foam upon release.  |
| Color  | Crème. Some products contain a dye or colorant i.e. Fireblock is orange.  |
| Odor   | Slight hydrocarbon odor during curing stage   |
| Odor Threshold:  | No data available   |
| Physical State:  | Gas/Pressurized Liquid/Semi-Solid   |
| pH:  | No data available   |
| Melting Point/Freezing Point                                     | No data available   |
| Initial Boiling Point and Boiling Range                          | No data available   |
| Flash Point:   | -156°F (-68.9°C), estimated based on liquefied petroleum gas (Hydrocarbon HC)   |
| Evaporation Rate:  | No data available   |
| Flammability:  | Flammable   |
| Lower Flammability/Explosive Limit:                              | No data available   |
| Upper Flammability/Explosive Limit:                              | No data available   |
| Vapor Pressure   | Aerosol product > 50 psig/ 345 kPa  |
|  | Final product (sprayed): Very low (not determined)  |
| Vapor Density:   | Not available   |
| Relative Density/Specific Gravity:                               | ~ 1.1 (Water = 1)   |
| Solubility:  | Insoluble; reacts slowly with water during cure, liberating traces of CO <sub>2</sub>   |
| Partition coefficient: n-octanol/water:                          | No data available   |
| Auto-ignition Temperature:                                       | No data available   |
| Decomposition Temperature;                                       | No data available   |
| Viscosity:   | No data available   |
| Explosive Properties:  | May be sensitive to mechanical impact or static discharge. Vapor released during and immediately after dispensing may accumulate and ignite explosively if proper ventilation is not employed. Extinguish or remove all sources of ignition during dispensing, until product becomes tack free or skins over. |
| Oxidizing Properties:  | No data available   |
| VOC Content (calculated minus exempt compounds and water)        | 165 g/l (Handi-Foam Fireblock West and Handi-Foam Window & Door West 160 g/l)   |

**SECTION 10- STABILITY AND REACTIVITY****10.1 Reactivity**

No dangerous reaction known under conditions of normal use.

**10.2 Chemical Stability**

Stable under normal storage conditions. Contents under pressure. Container may explode if heated. Do not pierce or burn, even after use. Avoid temperatures below 40°F (4°C). For longest shelf life, avoid storage above 100°F (38°C).

**10.3 Possibility of Hazardous Reactions**

Elevated temperatures can cause product to decompose, releasing carbon dioxide. Flammable propellant. Contents are under pressure and exposure to high temperature can cause containers to rupture or explode.

**10.4 Conditions to Avoid**

Heat. Incompatible materials. Sources of ignition. Avoid temperatures below 40°F (4°C) or temperatures above 100°F (38°C).

**10.5 Incompatible Materials**

Alcohols, strong bases, amines, metal compounds, ammonia, and strong oxidizers.

**10.6 Hazardous Decomposition Products**

See Section 5.2 for hazardous decomposition products due to combustion.

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## SECTION 11- TOXICOLOGICAL INFORMATION

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### 11.1 Information on Toxicological effects:

**Signs and Symptoms of Exposure based on test data and/or information on the components, this material may produce the following health effects:**

**Eye:** May cause eye irritation

**Skin:** May cause skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of skin. May cause an allergic reaction.

**Inhalation:** May be harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Ingestion:** May be harmful if swallowed. May cause gastrointestinal irritation: stomach distress, nausea, or vomiting.

**Chronic:** Chlorinated paraffin (C14-C16) may cause harm to breastfed children.

#### **Acute Oral Toxicity**

Expected to have low acute oral toxicity

#### **Acute inhalation toxicity**

Expected to have low acute inhalation toxicity

#### **Acute dermal toxicity**

Expected to have low acute dermal toxicity

#### **Skin irritation**

Causes skin irritation

#### **Eye irritation**

Causes serious eye irritation

#### **Sensitization**

May cause skin and respiratory sensitization

#### **Genotoxicity**

Genetic toxicity data for MDI is inconclusive. Some in-vitro studies yielded positive results, while other test data was negative

#### **Mutagenicity**

Test data using laboratory animals was predominately negative

#### **Specific organ toxicity- single exposure**

May cause respiratory irritation

#### **Specific organ toxicity- repeated exposure**

May cause damage to the lungs, central nervous system and skin

#### **Aspiration hazard**

No data available

### 11.2 Delayed, Immediate, and Chronic Effects of Short- and Long-Term Exposure

MDI and PMDI: IARC Group 3 carcinogen- Not classifiable as to its carcinogenicity to humans. Not listed as a carcinogen by ACGIH, OSHA or NTP. MDI/PMDI did not cause birth defects in laboratory animals; fetal effects occurred only at high doses which were toxic to the mother. Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/PMDI (6mg/m<sup>3</sup>) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects. Chlorinated paraffins (C14-C16) may accumulate in body tissues and fluids rich in lipid content; therefore, this material may cause harm to breastfed children.

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## SECTION 12- ECOLOGICAL INFORMATION

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### 12.1 Ecotoxicity

The aquatic toxicity of this product has not been experimentally determined. However, it is expected to have low acute aquatic toxicity based on the acute aquatic toxicity of the individual components and their concentration in this mixture.

### 12.2 Persistence and degradability

Product is not readily biodegradable. In aquatic and terrestrial environments, this material reacts with water

### 12.3 Bioaccumulative potential

Bioaccumulation potential is low

### 12.4 Mobility in soil

Expected to have low mobility based on product's reactivity with water

### 12.5 Other Adverse Effects

Propellant: Ozone Depletion Potential- 0; Global Warming Potential- 1

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## SECTION 13- DISPOSAL CONSIDERATIONS

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### 13.1 Waste Treatment Methods

#### **Methods of disposal**

Before disposing of containers, relieve container of any remaining foam and pressure. Allow dispensed product to fully cure before disposing. Never discard in a liquid state. This material must be disposed of in accordance with all local, regional, national, international regulations.

**Other disposal recommendations:**

Do not puncture or incinerate containers. Use appropriate Personal Protective Equipment.

**SECTION 14- TRANSPORTATION**Shipping Information

|               |   |
|---------------|---|
| <b>Ground</b> | Limited Quantity  |
| <b>Air</b>    | UN1950 Aerosols, Flammable 2.1<br>(Flammable Gas Label)<br>LIMITED QUANTITY<br>Packing Instructions (Cargo & Passenger) 203 |
| <b>Water</b>  | UN1950 Aerosols, Flammable 2.1<br>(Flammable Gas Label)<br>LIMITED QUANTITY   |

**SECTION 15- REGULATORY****15.1 Safety, health, and environmental regulations/ legislations specific for the substance or mixture****U.S. Federal Regulations**

OSHA Hazard Communication Standard: This material is classified as a hazardous in accordance with OSHA 29 CFR 1910-1200

**TSCA Status:** All components of the mixture on the TSCA 8(b) inventory are designated "active".

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated "active".

**US TSCA Section 5(a)(2) Proposed Significant New Use Rules (SNURs): Listed substance**

Alkanes, C14, chloro (CAS 198840-65-2) 40 CFR 721.11073

**US TSCA Section 5(e) PMN-Substance Consent Orders: Listed substance**

Alkanes, C14, chloro (CAS 198840-65-2) P12283, P14683

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpart D)**

Alkanes, C14, chloro (CAS 198840-65-2) 1.0 % containing products or more are subject to export notifications. Export notification requirements are per export per country as required under 40 C.F.R. §707.65(a)(2)(ii).

**Superfund Amendments and Reauthorization Act (SARA)**

**SARA Section 311/312 Hazard Categories:** Acute Health Hazard, Chronic Health Hazard, Fire Hazard, Reactive Hazard, Sudden Release of Pressure Hazard

**SARA 313 Information:** MDI and PMDI are subject to reporting levels established by Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

**SARA 302/304 Extremely Hazardous Substance:** No components of the product exceed the threshold (de minimis) reporting levels established by these sections of the Title III of SARA.

**SARA 302/304 Emergency Planning & Notification:** No components of the product exceed the threshold (de minimis) report levels established by these sections of the Title III of SARA.

**Comprehensive Response Compensation and Liability Act (CERCLA):** This product contains the following CERCLA reportable substances: 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8), RQ- 2,268 kg (5,000 lbs).

**Clean Air Act (CAA) - 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8)** is listed as a Hazardous Air Pollutant (HAP) designated in CAA Section 112 (b). This product does not contain any Class 1 or Class 2 Ozone depleters.

**Clean Water Act (CWA) - 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8)** is listed as a Hazardous Substance under the CWA. None of the chemicals in these products are listed as Priority Pollutants under the CWA. None of the chemicals listed in these products are listed as Toxic Pollutants under the CWA.

**U.S. State Regulations:**

**California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986:** None of the chemicals are listed.

**Other U.S. State Inventories:**

4, 4'- Diphenylmethane diisocyanate (CAS #101-68-8) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/air Pollutants lists: CA, DE, ID, IL, ME, MA, MN, NJ, PA, WA, WI

Polymeric MDI (CAS #9016-87-9) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: DE, NJ, MN

Isobutane (CAS #75-28-5) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: DE, ME, MA, MN, NJ, PA

Dimethyl ether (CAS #115-10-6) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: DE, ME, MA, MN, NJ, PA

Propane (CAS #74-98-6) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air

Pollutants lists: DE, MA, MN, NJ, PA, WA

## Canada

### Consumer Chemicals & Containers Regulation Hazard Symbols:



Flammable



Pressurized Container

**Canada Controlled Product Regulations (CPR):** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation, and the SDS contains all the information required by the Controlled Products Regulations.

**Canadian Ingredient Disclosure List (IDL):** 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8) is listed on the IDL.

**Canadian National Pollutant Release Inventory (NPRI):** MDI and PMDI are listed on the NPRI

### Global Chemical Inventory Lists:

United States: Toxic Substance Control Act (TSCA)- Yes

Canada: Domestic Substances List (DSL)- Yes

Canada: Non-Domestic Substances List (NDSL)- No

**15.2 Chemical safety assessment:** For this product a chemical safety assessment was not carried out

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## SECTION 16- OTHER

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**NFPA: Health Hazard 2; Flammability 3; Reactivity 1**

**HMIS: Health Hazard 2; Flammability 3; Physical Hazard 1**

Hazard Rating: 0=minimal, 1= slight, 2=moderate, 3=severe, 4= extreme

### Legend:

ACGIH- American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

C- Ceiling Limit

CA AB OEL- Alberta, Canada Occupational Exposure Limit

CA BC OEL- British Columbia, Canada Occupational Exposure Limit

CA ON OEL- Ontario, Canada Occupational Exposure Limit

CA QC OEL- Quebec, Canada Occupational Exposure Limit

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DOT: US Department of Transportation

IATA: International Air Transport Association

IMDG: International Maritime Code for Dangerous Goods

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

STEL- Short Term exposure limit

TWA- Time weighted average

TWAEV- Time weighted average exposure value

WEEL- US workplace environmental exposure levels

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