

SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:

WANNATE® HB-75B

Alternate names:

Solution of 1,6-Hexamethylene diisocyanate-based Biuret Polyisocyanate

1.2 Recommended use:

Identified uses: Binding agent

Component for polyurethane products

Restrictions on use: Consumer and domestic (household) uses.

1.3 Supplier:

Wanhua Chemical (America) Co., Ltd.

3803 West Chester Pike, Suite 240

Newtown Square, PA 19073

Customer service telephone: 610-566-5297

Telephone in Canada: 613-796-1606

www.whchem.com

1.4 Emergency telephone number:

North America: Chemtrec 800-424-9300 (domestic)

+1-703-527-3887 (international, collect calls accepted)

Europe: +31 20 20 65132/65130 (08:30-17:30) +44 780 183 7343

Section 2: Hazard Identification

2.1 Classification:

Classified according to US Hazard Communication Standard (HCS 2012) and Canada Hazardous Products Regulations (WHMIS 2015).

Flammable liquid Cat. 3; H226

Respiratory Sensitization Cat. 1; H334

Skin Sensitization Cat. 1; H317

Acute Toxicity-inhalation Cat. 4; H332

Specific Target Organ Toxicity Single Exposure Cat. 3; H335 + H336

2.2 Label elements:



Danger.

Flammable liquid and vapor.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

Harmful if inhaled.

May cause respiratory irritation.

May cause drowsiness or dizziness.

Prevention

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep container tightly closed.

Ground and bond container and receiving equipment.

Use explosion-proof electrical, ventilating, lighting equipment.

Use non-sparking tools.

Take action to prevent static discharges.

Wash exposed skin thoroughly after handling.

Wear protective gloves, protective clothing and eye protection or face protection.

Avoid breathing vapors, fume, spray or dust.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing should not be allowed out of the workplace.

In case of inadequate ventilation wear respiratory protection.

In case of fire: Use Carbon dioxide, dry chemical powder, dry sand, alcohol-resistant foam to extinguish.

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2.2 Label elements: (continued)

Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash with polyglycol based skin cleanser, corn oil or plenty of soap and water. If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.

Storage

Store in a well-ventilated place. Keep cool. Store locked up.

Disposal

Recycle and or dispose of contents and containers in accordance with local, regional, national and international regulations.

2.3 Other hazards:

Contains isocyanates; may react in contact with water and other materials releasing heat and gases (see Section 10).

Section 3: Composition/Information on Ingredients

Chemical Name	CAS RN®	Wt. %	Substance Classification
Hexamethylene diisocyanate homopolymer Common name: HDI oligomers	28182-81-2	75	Skin Sens.1; H317 Acute Tox. 4; H332 STOT SE 3; H335
<i>n</i> -butyl acetate	123-86-4	25	Flam. Liq. 2; H225 STOT SE 3; H336
Hexamethylene diisocyanate Common name: HDI	822-06-0	<0.5	Acute Tox. 3; H331 Eye Irrit. 2A; H319 STOT SE 3; H335 Skin Irrit. 2; H315 Resp. Sens. 1; H334 Skin Sens. 1; H317

Section 4: First-Aid Measures

4.1 Description of first-aid measures:

Precautions: Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). First-aid providers should avoid direct contact with this chemical.

Inhalation: If breathing is difficult, remove person to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTRE or doctor.

If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Immediately obtain medical attention and transport victim to an emergency care facility.

Skin Contact: Take off immediately all contaminated clothing shoes and leather goods (e.g. watchbands, belts). Wash exposed skin with a polyglycol based skin cleanser, corn oil or plenty of water and mild, non-abrasive soap. Completely decontaminate clothing, shoes and leather goods before reuse or discard. If skin irritation or rash occurs: Get medical attention.

Eye Contact: Remove source of exposure or move person to fresh air. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

If product is a solid in the eye: Do not allow victim to rub eye(s). Let the eye(s) water naturally for a few minutes. Have victim look right and left, and then up and down. If particle/dust does not dislodge, rinse cautiously with water until particle is removed. If irritation persists, obtain medical attention. DO NOT attempt to manually remove anything stuck to eye(s).

Ingestion: If swallowed, call a POISON CENTER or doctor. Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration.

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4.2 Most important symptoms and effects, acute and delayed:

Inhalation: Respiratory tract irritation, difficulty breathing or asthmatic reaction, drowsiness and dizziness.

Skin Contact: May cause in tingling, irritation or redness of the skin inflammation, rash, itching and staining. Repeated skin contact with this material may cause an allergic skin reaction.

Eye Contact: Irritation and redness of the eye tissue.

Ingestion: Swallowing is expected to cause drowsiness and dizziness, weakness, nausea and vomiting. Causes irritation of the tissues of the mouth, throat and digestive tract. Onset of symptoms may be delayed. Aspiration of the liquid into the airways during swallowing or vomiting may be harmful to the lungs and respiratory tract.

4.3 Indication of any immediate medical attention and special treatment needed:

Get immediate medical attention if inhaled or if allergy symptoms develop.

Section 5: Fire-fighting Measures

5.1 Extinguishing media:

Carbon dioxide, dry chemical powder, dry sand, alcohol-resistant foam. Alcohol resistant foams are preferred for large fires. Use water spray to cool fire-exposed containers.

Unsuitable extinguishing media: High volume water jet. Exercise caution when using water since the reaction between water and hot isocyanates can be vigorous and will generate CO₂ gas.

5.2 Special hazards arising from the chemical:

Flammable liquid and vapor (Flash point 46°C. Can release vapors that form explosive mixtures with air.

May accumulate flammable vapors in the storage container.

During a fire, products of combustion may include irritating/toxic hydrogen cyanide, isocyanate vapor, carbon monoxide, carbon dioxide, nitrogen oxides, dense smoke and irritating or toxic fumes.

Reacts vigorously with water at high temperatures. Closed containers may rupture violently when heated or contaminated with water.

5.3 Special protective equipment and precautions for fire-fighters:

As for any fire, evacuate the area and fight the fire from a safe distance. Firefighters must wear full protective equipment including positive pressure self-contained breathing apparatus and chemical protection clothing.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Wear adequate personal protective equipment, including an appropriate respirator as indicated in Section 8. Isolate spill area, preventing entry by unauthorized persons. Ventilate area of spill. Do not touch or walk through spilled material.

Stop the leak if you can do it without risk.

Test for HDI in the air. Do not breathe vapors, spray or mists of HDI.

When cleaning with Decontamination solution, harmful gases may evolve. Ensure adequate ventilation or wear a respirator.

6.2 Environmental precautions:

Avoid releases to the environment and prevent material from entering confined areas, domestic sewers, natural waterways, or storm water management systems.

6.3 Methods and material for containment and cleaning up:

Immediately shut off the leak if it is safe to do so. Contain the spill with suitable non-combustible absorbent material (e.g. sand, silica gel, acid binder, universal binder). Use clean non-sparking tools to collect absorbed material.

Shovel into open-top drums or plastic bags for further decontamination, if necessary. Do not seal drums or containers.

Neutralize small spills with Decontamination solution.

Never return spills in original containers for re-use.

Wash area with a commercial spill decontamination kit for isocyanates or one of the following Decontamination solutions:

Formulation A: Liquid surfactant 0.2% to 2%; Sodium carbonate 5% to 10%; Water to make up to 100%.

Formulation B: Liquid surfactant 0.2% to 2%; Concentrated ammonium solution 3% to 8%; Water to make up to 100%.

Formulation C: Ethanol, isopropanol or butanol 50%; Concentrated ammonium solution 5%; Water to make up to 100%.

Formulation B reacts faster than Formulation A.

Formulation C is especially suitable for cleaning of equipment from unreacted isocyanate and neutralizing under freezing conditions.

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Section 7: Handling and Storage

7.1 Precautions for safe handling:

Before handling, it is important that engineering controls are operating, protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use.

Persons allergic to isocyanates, and particularly those suffering from asthma or other respiratory conditions, should not work with isocyanates.

Avoid breathing vapors, fumes, spray mist or dusts from this material.

Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Avoid contact with skin and eyes.

Use only in a well-ventilated area.

In case of inadequate ventilation wear respiratory protection.

Wear respiratory protection when handling heated product or if spraying.

Wear protective gloves, protective clothing and eye/face protection.

Contaminated work clothing must not be allowed out of the workplace.

Do not reseal containers if contamination of containers is suspected.

Keep containers closed when not in use.

Assume that empty containers contain residues which are hazardous.

Keep away from food and drink. Wash hands and exposed skin before eating, drinking or smoking and at the end of the workshift.

Refer to directives and regulations for instructions on the safe handling, employee training, monitoring and enforcement procedures for isocyanates [e.g. US Department of Labor, OSHA Directive # CPL 03-00-017 National Emphasis Program – Occupational Exposure to Isocyanates. Ontario Designated Substances Regulation-Isocyanates].

7.2 Conditions for safe storage:

Store flammable materials according to occupational health and safety regulations and fire and building codes which will describe the kind of storage area and the type of storage containers for a specified amount of the material.

Have appropriate fire extinguishers and spill clean-up equipment in or near storage area.

Store in a dry, well-ventilated area, out of direct sunlight and away from heat, sources of ignition and incompatible materials.

Store in a place accessible by authorized persons only.

Keep containers tightly closed.

Recommended storage temperature: between 0°C and 30°C (32 – 86°F).

Protect from moisture/humidity; may react with water producing CO₂ gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed.

Do not re-seal contaminated containers.

Nitrogen blanketing open containers is recommended to minimize oxidation and keep out moisture.

Store product in its original container.

Incompatible with copper and copper alloys, brass and bronze.

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Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

Occupational Exposure Limits: Consult local authorities for acceptable exposure limits.

Ingredient	ACGIH® TLV®	U.S. OSHA PEL	Other Exposure Limits
Hexamethylene diisocyanate homopolymer	Not established	Not established	Not established
n-Butyl acetate	50 ppm 150 ppm STEL	150 ppm	NIOSH REL: 150 ppm 200 ppm STEL 1700 ppm IDLH
Hexamethylene diisocyanate	0.005 ppm	Not available	NIOSH REL 0.005 ppm/0.035 mg/m ³ NIOSH Ceiling limit 0.02 ppm/0.140 mg/m ³ Ontario (Canada) TWA: 0.005 ppm 0.02 ppm Ceiling Designated Substance

Some jurisdictions have specific regulations for isocyanates. These regulations may include requirements for medical surveillance programs, including pre-employment and pre-placement examinations, periodic medical examinations, clinical tests, health education and record keeping. Obtain detailed information from the appropriate government agency in the relevant jurisdiction.

8.2 Engineering Controls:

Handle product in closed system or area provided with appropriate exhaust ventilation.

Handle in accordance with good industrial hygiene and safety practice. Ensure regular cleaning of equipment, work area and clothing. Curing ovens must be properly ventilated to prevent emissions of HDI monomer into the workplace.

Monitor the workplace air for the presence of HDI and n-butyl acetate vapor, fume and spray.

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have equipment available for use in emergencies such as spills or fire.

8.3 Individual protection measures:

Eye/Face protection: Wear chemical safety goggles. Wear a face-shield or full-face respirator when needed to prevent exposure to liquid, mist or fume.

Skin protection: Wear chemical protective gloves, suit, and boots to prevent skin exposure. Consult protective equipment suppliers for recommended glove and clothing materials resistant to isocyanate and n-butyl acetate. Evaluate resistance under conditions of use and maintain protective clothing carefully. Remove contaminated gloves and clothing immediately. Contaminated leather materials such as watchbands, shoes and belts should be removed immediately and discarded.

Respiratory protection: Airborne concentrations of HDI may exceed the occupational exposure limits when the product is sprayed, aerosolized or heated. When airborne concentrations of HDI exceed the exposure limits, approved respiratory protective equipment (RPE) is required. Wear an approved air purifying respirator with organic vapor cartridges and HEPA particulate filter or self-contained breathing apparatus (SCBA) or supplied air respirator.

A respiratory protection program that meets the regulatory requirement, such as OSHA's 29 CFR 1910.134 or Canadian Standards Association (CSA) Standard Z94.4, must be followed whenever workplace conditions warrant a respirator's use.

NIOSH Recommendations for HDI concentrations in air:

NIOSH REL: 0.005 ppm TWA / 0.035 mg/m³

Up to 0.05 ppm:

(APF = 10) Any supplied-air respirator

Up to 0.125 ppm:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

Up to 0.25 ppm:

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

Up to 1 ppm:

(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

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8.3 Individual protection measures (continued):

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister or any appropriate escape-type, self-contained breathing apparatus.

Other protection: Safety shower, hand-wash station and eye-wash fountain readily available in the immediate work area.

Follow the applicable code for medical surveillance program indicated for isocyanates.

Environmental Exposure Controls: Store finished products in closed containers (e.g. bulk tanks, drums, cans). All waste products are assumed to be collected and returned for re-processing or use as a fuel. Dispose of waste product or used containers according to local regulations. A leak prevention plan is needed to prevent low level continual releases. Incinerate, absorb or adsorb vapors stripped from solution whenever necessary.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

Appearance:	Liquid. Colorless to pale yellow.
Odor:	Characteristic sweet-solvent odor of butyl acetate.
Odor threshold:	Not available
pH:	Not available
Melting point/freezing point:	Not available
Initial boiling point and boiling range:	Not available
Flash point:	35°C (95°F)
Flammability:	Flammable liquid
Auto-ignition temperature:	Not available
Upper/lower flammability or explosive limits:	LEL: 1.2% n-Butyl acetate UEL: 7.5% n-Butyl acetate
Evaporation rate:	Not available
Vapor pressure:	0.005 mmHg @ 20°C (68°F) for HDI (approximate) 10 mmHg at 20°C (68°F) for n-butyl acetate
Vapor density:	Not available
Relative density:	1.07 (water=1)
Solubility:	Insoluble in water; reacts with water
Partition coefficient (n-octanol/water):	Not available; reacts with water
Decomposition temperature:	>300°C (>572°F)
Viscosity:	140 mPa.s @ 25°C (dynamic)

Section 10: Stability and Reactivity

10.1 Reactivity:

Reacts with water, Amines, Strong bases, Alcohols, Metal compounds (e.g. organotin catalysts). Isocyanates are very reactive compounds and are especially highly reactive toward a large number of compounds with active hydrogens, particularly at high temperatures and in the presence of catalysts.

10.2 Chemical stability:

Product decomposes slowly when stored at controlled room temperature and away from incompatible materials. Decomposition is accelerated at elevated temperatures.

10.3 Possibility of hazardous reactions:

Contact with water or humidity may cause a slow reaction, forming carbon dioxide which could rupture closed containers. HDI-based isocyanurates may undergo uncontrolled exothermic polymerization upon contact with incompatible materials, especially strong bases, such as triethylamine and sodium hydroxide, trialkyl phosphines, potassium acetate, many metal compounds soluble in organic media or at temperatures over 204°C. The resulting pressure build-up may rupture closed containers.

10.4 Conditions to avoid:

Avoid moisture, heat and freezing temperatures.
 Avoid unintended contact with polyols, the polymerization reaction generates heat.

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10.5 Incompatible materials:

Strong bases, Amines, Alcohols, Acids - May react violently with generation of heat.
Strong oxidizers - May react violently with generation of heat and ignition.
Metal compounds (e.g. organotin catalysts, alkali metals) - May polymerize with the generation of heat and pressure.
Amides, phenols, mercaptans, urethanes, ureas and surface active compounds (surfactants, non-ionic detergents) - May react vigorously or violently with the generation of heat.
Water - Reacts slowly, forming carbon dioxide which could rupture closed containers.

10.6 Hazardous decomposition products:

By thermal decomposition and combustion, product may generate nitrogen oxide, hydrogen cyanide and isocyanate vapors.

Section 11: Toxicological Information

11.1 Likely routes of exposure:

Inhalation of aerosols or vapor. Skin contact. Eye contact. Ingestion.

11.2 Information on acute health effects:

Inhalation toxicity: Data not available for the mixture. Airborne exposures are unlikely to occur unless product is heated or forms an aerosol or mist during pouring, frothing or spraying operations. Short-term inhalation exposure to Hexamethylene diisocyanate based (HDI-based) isocyanurates can cause respiratory and mucous membrane irritation. Symptoms include eye and nose irritation, dry or sore throat, runny nose, shortness of breath, wheezing and laryngitis. Coughing with chest pain or tightness may also occur, frequently at night. These symptoms may occur during exposure or may be delayed several hours. High aerosol concentrations could cause inflammation of the lung tissue (chemical pneumonitis), chemical bronchitis with severe asthma-like wheezing, severe coughing spasms and accumulation of fluid in the lungs (pulmonary edema), which could prove fatal. Symptoms of pulmonary edema may not appear until several hours after exposure and are aggravated by physical exertion.

Oral toxicity: Data not available for the mixture. Ingestion is not expected with normal, occupational use of this product. Animal studies indicate that ingested HDI-based isocyanurates have low oral toxicity. Swallowing may result in irritation of the mouth, throat and digestive tract.

Dermal Toxicity: Data not available for the mixture. HDI-based isocyanurates can cause irritation. Isocyanates, in general, can cause skin discoloration (staining) and hardening of the skin after repeated exposures. Skin sensitization, resulting in dermatitis, may occur in some individuals. Cured material may be difficult to remove from the skin. Repeated skin contact with this material may cause skin sensitization in humans. Further skin contact may result in inflammation, rash, itching and staining.

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u>	<u>LD₅₀ Dermal</u>	<u>LC₅₀ Inhalation</u>
HDI homopolymer	>2500 mg/kg (rat)	>2000 mg/kg (rat, female)	3.9 mg/l Calculated worst-case Acute Aerosol Assessment
n-Butyl acetate	14130 mg/kg (rat)	>14112 mg/kg (rabbit)	>1800 ppm (rat)
HDI	746 mg/kg (rat)	>7000 mg/kg (rabbit)	0.124 mg/l / 4 hrs. (rat) mist

Skin corrosion / irritation: HDI oligomers may cause slight skin irritation based on evidence from animal tests.

Serious eye damage / irritation: Slight eye irritation (rabbit); OECD Test Guideline 405. Application of 500 mg hexamethylene diisocyanate based isocyanurates caused moderate eye irritation in rabbits in a standard Draize test.

STOT (Specific Target Organ Toxicity) – Single exposure: For HDI oligomers: in animal tests aerosolized HDI oligomers was a pulmonary irritant at 15.7 mg/m³ and above. A NOAEL of 3.2 mg/m³ for inhalation exposure to aerosolized HDI oligomers was determined.

Inhalation of n-butyl acetate causes irritation to the respiratory tract based on human exposures.

Inhalation of n-butyl acetate concentrations above 1500 ppm has caused dose-related depression of the central nervous system.

Aspiration hazard: Data not available. Aspiration of the liquid into the airways during swallowing or vomiting may be harmful to the lungs and respiratory tract.

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11.3 Information on delayed and chronic health effects:

STOT (Specific Target Organ Toxicity) – Repeated exposure: Rats exposed to aerosolized HDI trimer in a 90-day subchronic inhalation study showed evidence of pulmonary irritation. A NOAEL of 3.3 mg/m³ for inhalation exposure to aerosolized HDI oligomers was determined.

Sensitization - respiratory and/or skin: May cause an allergic skin reaction. Hexamethylene diisocyanate (HDI) oligomers showed skin sensitisation potential in a Local Lymph Node Assay. HDI-based isocyanurates caused slight to moderate sensitization in guinea pigs.

Product may contain traces (<0.5%) of HDI monomer. If inhaled, HDI vapor can cause allergy or asthma-like symptoms. Persons already sensitized to isocyanates, may experience allergy, asthma-like symptoms and breathing difficulties when exposed to very low levels of isocyanates in air, below the occupational exposure limits (Section 8).

Carcinogenicity: Data not available for the mixture. Not classifiable as a human carcinogen.

HDI Did not show carcinogenic or mutagenic effects in animal experiments.

This material does not contain any component that is considered a human carcinogen by IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists, OSHA (Occupational Safety and Health Administration) or NTP (National Toxicology Program).

Reproductive toxicity: Data not available for the mixture.

HDI oligomer: Data for the related substance HDI trimer in a Reproduction / Developmental Toxicity Screening Test in rats, the NOAEL for reproductive effects, by exposure to aerosol was 6 mg/m³.

Germ cell mutagenicity: Data not available for the mixture.

Data for HDI trimer: An in vitro Mammalian Cell Gene Mutation Test (HPRT assay) according to OECD TG 476 was negative for mutagenicity.

Interactive effects: Data not available

Section 12: Ecological Information

12.1 Toxicity:

Data not available for the mixture.

12.2 Persistence and degradability:

HDI polymer is not readily biodegradable (1%, 28 days).

12.3 Bioaccumulative potential:

Hydrolyses in presence of water. Bioaccumulation is unlikely.

12.4 Mobility in soil:

Slightly mobile in soils. Hydrolyses to form water-insoluble compounds.

Section 13: Disposal Considerations

13.1 Disposal methods:

Do NOT discard into any sewers, on the ground or into any body of water.

Store material for disposal as indicated in Section 7 Handling and Storage.

Empty containers retain product residue. Follow label warnings even if container appears to be empty.

The required hazard evaluation of the waste and compliance with the applicable hazardous waste laws are the responsibility of the user. Dispose of contents and container in accordance with local, regional, national and international regulations.

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Section 14: Transport Information

14.1 UN Number :

UN1866

14.2 Shipping name:

RESIN SOLUTION, FLAMMABLE

14.3 Transport hazard class(es):

Class 3

14.4 Packing group:

PG III

14.5 Environmental hazards:

Hazardous substance RQ Hexamethylene-1,6-diisocyanate 100 lb (45.4 kg)

14.6 Special precautions for user:

Contains isocyanates. Keep away from moisture and water.

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Do not breathe vapors, fumes or spray.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Hexamethylene diisocyanate Category Y

Follow IMO regulations for transporting bulk shipments.

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:**USA****TSCA Status:** Substances are listed on the TSCA inventory.**SARA Title III :**

Sec. 313 Hexamethylene-1,6-diisocyanate (Diisocyanates), 1% de minimis

CERCLA RQ Hexamethylene-1,6-diisocyanate 100 lbs (45.4 kg)

n-butyl acetate 5000 lb (2270 kg)

California Prop 65: This product does not contain any chemicals listed on the Proposition 65 list of chemicals of the Safe Drinking Water and Toxic Enforcement Act.**Canada****NSNR Status:** Substances are listed on the on the DSL.**National Pollutant Release Inventory (NPRI):** N-butyl acetate, Reportable to NPRI.**European Inventories:** HDI oligomers EC list no. 500-060-2.**International Inventories:****Australia:** Substances are present on the Inventory of Chemical Substances (AICS).**China:** Substances are present on the Chemical Inventory (IECSC).**Japan:** Substances are present on the inventory Existing and New Chemical Substances (ENCS, ISHL).**Korea:** Substances are present on the inventory - Existing Chemicals Inventory.**Mexico:** HDI, n-butyl acetate are present on the inventory (INSQ).**New Zealand:** Substances are present on the Chemical Inventory (NZIoC).**Philippines:** Substances are present on the Inventory of Chemicals and Chemical Substances (PICCS).**Taiwan:** Substances are present on the Chemical Inventory (TCSI).**Vietnam:** HDI, n-butyl acetate are present on the National Inventory of Chemicals (NCI).

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Section 16: Other Information**Revision date:**

August 8, 2019

Revision summary:

Previous version April 2017. Revisions since previous version:

- Section 1.1 – Alternate names
- Section 8 - Occupational Exposure Limits
- Section 11 – Toxicological information

References and sources for data:

CCOHS, Cheminfo Profile for Hexamethylene diisocyanate based isocyanurates

RTECS®, Registry of Toxic Effects of Chemical Substances, Isocyanic acid, hexamethylene ester, polymers

USA: Haz Com Standard 29 CFR 1910.1200 (2012)

Canada: Controlled Products Regulations.

Legend to abbreviations:

ACGIH® – American Conference of Governmental Industrial Hygienists

AIHA – American Industrial Hygiene Association

ERPG – Emergency Response Planning Guidelines

GHS- Globally Harmonized System for Classification and Labeling.

IDLH – Immediately Dangerous to Life or Health

LD₅₀- Median lethal dose; the dose causing 50 % lethality

NIOSH-National Institute for Occupational Safety and Health

OSHA - Occupational Safety and Health Administration

PEL – Permissible Exposure Limit

TWA – Time weighted average

TLV® - Threshold Limit Value

WEEL – Workplace Environmental Exposure Level

WHMIS – Workplace Hazardous Materials Information System.

Supplier Note:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.