

SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:

Wannate® HB-75BX

Alternate names:

Hexamethylene diisocyanate oligomers; Aliphatic polyisocyanate homopolymer; HDI Polyisocyanate; Hexane, 1,6-diisocyanato-, homopolymer

1.2 Recommended use:

Identified uses:

Component for polyurethane coating products.

Restrictions on use:

All consumer uses are strongly advised against.

1.3 Supplier:

Wanhua Chemical (America) Co.,Ltd.
3803 West Chester Pike, Suite 240
Newtown Square, PA 19073
Tel: 613-796-1606 Customer service: 610-566-5297

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: Hazards Identification

2.1 Classification:

Flammable Liquid Cat. 3; H226

Skin Sensitization Cat. 1; H317

Acute Toxicity Inhalation, Cat. 4; H332

Respiratory Sensitization Cat. 1; H334

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

2.2 Label elements:



Danger.

Flammable liquid and vapor.

May cause an allergic skin reaction.

Harmful if inhaled.

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

May cause respiratory irritation.

May cause drowsiness or dizziness.

Hazards not otherwise classified: Repeated exposure may cause skin dryness or cracking.

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.

Wear protective gloves, protective clothing and eye protection.

Avoid breathing vapors, fume, spray or dust.

Use only outdoors or in a well-ventilated area.

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

In case of inadequate ventilation wear respiratory protection.



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Section 2: Hazards Identification

2.2 Label elements: (continued)

Response

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation or rash occurs: Get medical attention.
Take off contaminated clothing and wash it before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
In case of fire: Use Alcohol-resistant foam, Carbon dioxide, dry chemical powder, dry sand to extinguish.

Storage

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

Disposal

P501: Recycle and or dispose of contents and containers in accordance with local, regional, national and international regulations.

2.3 Other hazards:

Contains isocyanates. May produce an allergic reaction.

Section 3: Composition/Information on Ingredients

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt. %</u>	<u>GHS Classification</u>
Hexamethylene diisocyanate oligomers	28182-81-2	75	Skin Sens. 1; H317 Acute Tox. inhalation, 4; H332 STOT SE, inhalation, 3; H335
<i>n</i> -butyl acetate	123-86-4	25	Flam. Liq. 3; H226 STOT SE 3; H336
Xylene	1330-20-7	12.5	Flam. Liq. 3; H226 Skin irrit. 2; H315 Aspiration tox. 1; H304 STOT SE 3; H336
HDI (Hexamethylene diisocyanate)	822-06-0	<0.5	Acute Tox. 3; H331 Eye Irrit. 2; H319 STOT SE 3; H335 Skin Irrit. 2; H315 Resp. Sens. 1; H334 Skin Sens. 1; H317

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Section 4: First-Aid Measures

4.1 Description of first aid measures:

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

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 relevant jurisdictions.

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If exposed or concerned: Get medical advice/attention.

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.

Eye Contact: 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, flush with lukewarm, gently flowing water for 5 minutes or until particle/dust is removed, while holding the eyelid(s) open. If irritation persists, obtain medical attention. DO NOT attempt to manually remove anything stuck to eye(s).

If product is a liquid: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 5 minutes, or until the chemical is removed, while holding the eyelid(s) open. If irritation persists, repeat flushing. Obtain medical attention immediately.

Skin Contact: As quickly as possible, remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Quickly and gently blot or brush away excess chemical. Immediately wash with lukewarm, gently flowing water and non-abrasive soap for 15-20 minutes. Completely decontaminate clothing, shoes and leather goods before reuse or discard. If skin irritation or rash occurs: Get medical advice/attention.

Ingestion: If swallowed, call a POISON CENTER or doctor/physician. 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. Quickly transport victim to an emergency care facility.

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

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

Eye Contact: Irritation of the eye tissue.

Skin Contact: Tingling, irritation or redness of the skin.

Ingestion: Irritation of the tissues of the mouth, throat and digestive tract. Other symptoms include headache, shortness of breath, nausea, vomiting, weakness, burning sensation in the mouth, abdominal pain and vomiting. Onset of symptoms may be delayed.

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

Get immediate medical advice/attention 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: Exercise caution when using water since the reaction between water and hot HDI-based isocyanates can be vigorous.

5.2 Special hazards arising from the product:

Flammable liquid (Flash point approximately 38°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.

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Section 5: Firefighting Measures, continued

5.3 Special protective equipment and precautions for firefighters:

As for any fire, evacuate the area and fight the fire from a safe distance. Firefighters must wear full protective equipment including self-contained breathing apparatus with chemical protection clothing when firefighters are exposed to decomposition products from this material.

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.
Remove or extinguish all sources of ignition. Take action to prevent static discharges. Use non-sparking tools.
Isolate spill area, preventing entry by unauthorized persons. Ventilate area of spill. Do not touch spilled material.
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 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 earth, sand, sawdust or suitable absorbent material (e.g. sand, silica gel, acid binder, universal binder).
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 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 ammonia 3% to 8%; Water to make up to 100%.

Formulation C: Ethanol, isopropanol or butanol 50%; Concentrated ammonia 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.

6.4 Reference to other sections:

See Section 8 for information on selection of personal protective equipment.

See Section 13 for information on disposal of spilled product and contaminated absorbents.

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.

Do not breathe 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 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].

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Section 7: Handling and Storage, continued

7.2 Conditions for safe storage, including any incompatibilities:

Store in a dry, well-ventilated area, out of direct sunlight and away from heat, sources of ignition and incompatible materials.
Keep containers tightly closed. Protect from moisture/humidity.
Recommended storage temperature: between 0°C and 30°C.
Have appropriate fire extinguishers and spill clean-up equipment in or near storage area.
Store in a place accessible by authorized persons only.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

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

<u>Ingredient</u>	<u>ACGIH® TLV®</u>	<u>U.S. OSHA PEL</u>	<u>Ontario (Canada) TWA</u>
Hexamethylene diisocyanate	0.005 ppm	Not available	0.005 ppm 0.02 ppm Ceiling Designated Substance
n-Butyl acetate	150 ppm 200 ppm STEL	150 ppm 200 ppm STEL	Refer to ACGIH TLV
Xylene	100 ppm TWA 150 ppm STEL	100 ppm TWA 150 ppm STEL	100 ppm TWA 150 ppm STEL

8.2 Exposure controls:

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

Curing ovens must be properly ventilated to prevent emissions of isocyanate monomer into the workplace.

Handle in accordance with good industrial hygiene and safety practice. Ensure regular cleaning of equipment, work area and clothing.

Monitor the workplace air for the presence of isocyanate vapor and fume.

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.

Personal Protection: Workers must comply with the Personal Protective Equipment requirements of the workplace in which this product is handled.

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. General purpose butyl rubber gloves may be used to minimize dermal exposures to this material and for cleaning and maintenance operations. Evaluate resistance under conditions of use and maintain protective clothing carefully.

Respiratory Protection: Approved respiratory protective equipment (RPE) is required. An approved respirator for isocyanates must be available in case of accidental releases.

A respiratory protection program that meets the regulatory requirement, such as OSHA's 29 CFR 1910.134, ANSI Z88.2 or Canadian Standards Association (CSA) Standard Z94.4-2002, must be followed whenever workplace conditions warrant a respirator's use.

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Section 8: Exposure Controls / Personal Protection, continued

NIOSH Recommendations for HDI concentrations in air:

NIOSH TWA: 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

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: Workplaces should have a safety shower, hand-wash station and eye-wash fountain readily available in the immediate work area.

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; viscous, colorless to pale yellow
Odour:	Solvent Odour
Odour threshold:	Not applicable
pH:	Not applicable
Melting point/freezing point:	Not available
Initial boiling point and boiling range:	Not applicable, decomposition below boiling point.
Flash point:	38 °C (estimated)
Evaporation rate:	Not available
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
Vapour pressure:	5.2 x 10 ⁻⁹ mmHg at 20°C (68°F) for HDI 10 mmHg at 20°C (68°F) for n-butyl acetate
Vapour density:	Not available
Relative density:	1.7 @ 25°C (water = 1)
Solubility (ies):	Insoluble in water; reacts with water
Partition coefficient (n-octanol/water):	Not available; reacts with water
Decomposition temperature:	Not available
Viscosity:	Dynamic: 225 mPa s @ 25°C

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Section 10: Stability and Reactivity

10.1 Reactivity:

Reacts with water, Amines, Strong bases, Alcohols, Heavy metals.

10.2 Chemical Stability:

Stable at normal ambient and anticipated storage and handling conditions.

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.

10.5 Incompatible Materials:

Strong bases, Amines, Alcohols, Acids - May react violently with generation of heat.

Metal compounds (e.g. organotin catalysts) - 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 oxides of nitrogen, hydrogen cyanide and isocyanic acid.

Section 11: Toxicological Information

11.1 Information on toxicological effects:

Acute health hazards:

Inhalation: 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.

Eye: Contact with liquid, mist and aerosols may cause irritation with redness, swelling, pain and watering of the eyes.

Skin: 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.

Ingestion: 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.

Skin corrosion / irritation

Data not available for the mixture. Application of 100 mg hexamethylene diisocyanate based isocyanurates caused moderate skin irritation in rabbits in a standard Draize test.

Serious eye damage / irritation

Data not available for the mixture. 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. Xylene, liquid and vapor, causes mild eye irritation based on evidence from animal studies.

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Section 11: Toxicological Information, continued

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u>	<u>LD₅₀ Dermal</u>	<u>LC₅₀ Inhalation (4-hour)</u>
Hexamethylene diisocyanate oligomers	>5000 mg/kg (rat)	>5000 mg/kg (rabbit)	4600 mg/m ³ (rat) Data converted from 1-hour exposure (NLM)
N-butyl acetate	>5000 mg/kg (rat)	17600 mg/kg (rabbit)	390 ppm
Xylene	3500 mg/kg (rat)	>4350 mg/kg (rabbit)	6350 ppm (rat)
HDI (Hexamethylene diisocyanate)	745 mg/kg (rat)	>5000 mg/kg (rabbit)	124 mg/m ³ (rat)

STOT (Specific Target Organ Toxicity) – Single exposure

For Hexamethylene diisocyanate: NOAEC for acute inhalation toxicity is 3.3 mg/m³, 6-hour exposure.
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.

STOT (Specific Target Organ Toxicity) – Repeated exposure

Data not available.

Aspiration hazard

Data not available.

Sensitization - respiratory and/or skin

May cause an allergic skin reaction. Hexamethylene diisocyanate 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

Not classifiable as a human carcinogen. 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.

Germ cell mutagenicity

Data not available.

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.



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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.
Dispose of waste in accordance with relevant national, regional and local environmental control provisions.

Section 14: Transport Information

14.1 U.S. Hazardous Materials Regulation (DOT 49CFR):

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.

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

Xylenes Category Y

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)

Canada

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

NSNR Status:

Substances are listed on the on the DSL.

European Inventories: The substance is listed on NLP (No Longer Polymers) list. EC (NLP) #500-060-2.
Component monomer substances are listed on EINECS: 212-485-8

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Section 15: Regulatory Information, continued

International Inventories:

Australia: Substances are listed on the Inventory of Chemical Substances (AICS).

China: Substances are listed on the Inventory.

European Union: Listed on NLP (No Longer Polymers) list. EC (NLP) #500-060-2. All other substances are listed on EINECS.

Japan: Substances are listed on the inventory.

Korea: Substances are listed on the inventory.

New Zealand: Substances are listed on the Inventory.

Philippines: Substances are listed on the Inventory of Chemicals and Chemical Substances (PICCS).

Section 16: Other Information

Revision date:

November 24, 2016

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

Methods for classification of mixtures:

USA: Haz Com Standard 29 CFR 1910.1200 (2012)

Canada: Controlled Products Regulations.

Legend to abbreviations:

ACGIH® – American Conference of Governmental Industrial Hygienists

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

NLM-National Library of Medicine

NOAEC- No Observed Adverse Effect Concentration

OSHA - Occupational Safety and Health Administration

STEL – Short term exposure limit

TWA – Time weighted average

TLV® - Threshold Limit Value

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.