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Section 1: Identification

1.1 Product identifier:

WANNATE® HDI

1.2 Recommended use:

Identified uses: Component in manufacture of polyurethane polymers.

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).

Acute Toxicity-inhalation Cat. 3; H331
Skin Irritation Cat. 2; H315
Skin Sensitization Cat. 1; H317
Eye Irritation Cat. 2A; H319
Respiratory Sensitization Cat. 1; H334
Specific Target Organ Toxicity Single Exposure Cat. 3; H335

2.2 Label elements:

Danger.
Toxic if inhaled.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.

Prevention
Wash exposed skin thoroughly after handling.
Wear protective gloves, protective clothing, and eye protection and 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.

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: 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.

IF IN EYES: 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.

Storage
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

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2.2 Label elements: (continued)

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.
Can decompose at high temperatures forming toxic gases. (see Section 10).

Section 3: Composition/Information on Ingredients

Chemical Name	CAS RN®	Wt.%	Substance Classification
Hexamethylene diisocyanate Common name: HDI	822-06-0	99.5 - 100	Acute Tox. 3; H331 Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2A; H319 Resp. Sens. 1; H334 STOT SE 3; H335

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.

4.2 Most important symptoms and effects, acute and delayed:

Inhalation: Exposure to vapors, aerosols and mists; toxic if inhaled.
Respiratory tract irritation, difficulty breathing or asthmatic reaction.
Short-term exposure to diisocyanates, such as 1,6-HDI can cause respiratory and mucous membrane irritation at airborne levels of about 0.05-0.1 ppm. 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. Exposure to isocyanates can cause difficulty breathing or asthmatic reaction.

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: Liquid **c**auses serious Irritation of the eye tissue and possibly permanent eye injury, including blindness. Vapors cause eye irritation; 0.05 – 0.1 ppm has caused irritation and watering of the eyes in humans.

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.

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 CO_2 gas.

5.2 Special hazards arising from the chemical:

Product can burn if heated; Flash point = 135°C (275°F)
During a fire, products of combustion may include toxic hydrogen cyanide, isocyanate vapor, carbon monoxide, carbon dioxide, corrosive 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 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.

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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.
Do not breathe vapors, fumes, spray mist or dusts from this material.
Avoid contact with skin and eyes.
Use only in a well-ventilated area.
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 in a dry, well-ventilated area, out of direct sunlight and away from heat, sources of ignition and incompatible materials.
Have appropriate fire extinguishers and spill clean-up equipment in or near storage area.
Store in a place accessible by authorized persons only.
Keep containers tightly closed.
Recommended storage temperature: 16 – 38°C (60 – 100°F).
P Protect from moisture/humidity; may react with water producing CO_2 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 and galvanized surfaces.

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	0.005 ppm	Not available	NIOSH TWA: 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.			

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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 isocyanate monomer (HDI) into the workplace. 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.

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. Polyvinyl alcohol or 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: 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 TWA: 0.005 ppm TWA / 0.035 mg/m^3
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: 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 incineration.

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Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:	
Appearance:	Liquid. Clear, colorless.
Odor:	Musty , pungent odor of isocyanates
Odor threshold:	0.005 ppm for HDI (AIHA)
pH:	Not available
Melting point/freezing point:	-67°C (-88.6 °F)
Initial boiling point and boiling range:	261°C (501.8 °F) decomposes Range not available
Flash point:	135°C (275°F)
Flammability:	Liquid, product can burn if strongly heated or involved in a fire.
Auto-ignition temperature:	454°C (849.2 °F)
Upper/lower flammability or explosive limits:	Not available
Evaporation rate:	Not available
Vapor pressure:	0.005 mmHg @ 20°C (68°F) for HDI (approximate)
Vapor density:	6 approximate (air = 1)
Relative density:	1.07 (water = 1)
Solubility:	Insoluble in water; reacts with water. Soluble in monochlorobenzene, and ortho-dichlorobenzene.
Partition coefficient (n-octanol/water):	Not available; reacts with water
Decomposition temperature:	255°C (491°F)
Viscosity:	3 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.

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. HDI is essentially insoluble with and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating CO_2 gas.
May attack and make brittle many plastic and rubber materials.

10.6 Hazardous decomposition products:

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

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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: 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.

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

11.2 Information on acute health effects (continued):

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. Symptoms may include redness, pain, itching, eye watering.

Acute Toxicity Data

Ingredient	LD_{50} Oral	LD_{50} Dermal	LC_{50} Inhalation
HDI	746 mg/kg (rat)	>7000 mg/kg (rabbit)	124 mg/m^3 / 4 hrs. (rat)

11.3 Information on delayed and chronic health effects:

STOT (Specific Target Organ Toxicity) – Single exposure: For HDI oligomers: in animal tests aerosolized HDI oligomers was a pulmonary irritant at 15.7 mg/m^3 and above. A NOAEL of 3.2 mg/m^3 for inhalation exposure to aerosolized HDI oligomers was determined.

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.

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/m^3 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: 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).

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11.3 Information on delayed and chronic health effects (continued):

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/m^3.

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

Interactive effects: Cross-sensitization with other diisocyanates may occur. People sensitized to Toluene diisocyanate (TDI) showed sensitization to HDI and Methylene diisocyanate (MDI) where no previous exposure to HDI or MDI was known.

Section 12: Ecological Information

12.1 Toxicity:

Data for HDI:

LC_{50}, fish (96 hour) 22 mg/L
EC_{50} *Daphnia magna* (24 hour) >0.33 mg/L.
EC_{50} Algae (72 hour) >77.4 mg/L.

12.2 Persistence and degradability:

Hydrolysis: HDI reacts with water to form predominantly inert polyurea.

12.3 Bioaccumulative potential:

Data not available

12.4 Mobility in soil:

Data not available

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.

Section 14: Transport Information

14.1 UN Number:

UN2281

14.2 Shipping name:

HEXAMETHYLENE DIISOCYANATE

14.3 Transport hazard class(es):

Class 6.1

14.4 Packing group:

PG III

14.5 Environmental hazards:

Hexamethylene1,6-diisocyanate

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:

Hexamethylene1,6-diisocyanate: Noxious liquid substance IBC Code: Category Y
Follow IMO regulations for transporting bulk shipments.

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Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

USA

TSCA Status: HDI is listed on the TSCA 8(b) inventory - Active.

SARA Title III :
Sec. 313 Hexamethylene-1,6-diisocyanate (Diisocyanates), 1% de minimis
CERCLA RQ Hexamethylene-1,6-diisocyanate 100 lbs (45.4 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: HDI is listed on the on the DSL.

National Pollutant Release Inventory (NPRI): HDI, not listed.

European Inventories: HDI is listed on EINECS. EC list no. 212-485-8.

International Inventories:
Australia: Substance is present on the Inventory of Chemical Substances (AICS).

China: Substance is present on the Chemical Inventory (IECSC) 11949.

Japan: Substance is present on the inventory Existing and New Chemical Substances (ENCS, ISHL) (2)-2863.

Korea: Substance is present on the inventory - Existing Chemicals Inventory. KE-18613

Mexico: Substance is present on the inventory (INSQ).

New Zealand: Substance is present on the Chemical Inventory (NZIoC). HSNO Approval: HSR001536

Philippines: Substance is present on the Inventory of Chemicals and Chemical Substances (PICCS).

Taiwan: Substance is present on the Chemical Inventory (TCSI).

Vietnam: Substance is present on the National Inventory of Chemicals (NCI).

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Section 16: Other Information

Revision date:

October 10, 2018

Revision summary:

Revisions since previous version: February 26, 2014

- Section 1 Supplier contact information
- Section 9 Revised flash point, viscosity data
- Section 15 updated International Chemical Inventory data

References and sources for data:

CCOHS, Cheminfo Profile for Hexamethylene diisocyanate based isocyanurates
OECD SIDS Hexamethylene Diisocyanate, UNEP Publications, June 2001
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
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.