

SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:

WANNATE® H1210

1.2 Recommended use:

Identified uses: Aliphatic isocyanate; Component for polyurethane products.

Restrictions on use: Consumer and domestic (household) uses. Food and drinking water contact materials.

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: Hazard Identification

2.1 Classification:

According to US Hazard Communication Standard (29 CFR 1910.1200) and Canada Hazardous Products Regulations (WHMIS 2015)

Acute toxicity (inhalation) Cat. 2; H330

Respiratory Sensitization Cat. 1; H334

Skin Irritation Cat. 2; H315

Eye Irritation Cat. 2A; H319

Skin Sensitization Cat. 1; H317

Specific Target Organ Toxicity Single Exposure Cat. 3; H335

2.2 Label elements:



Danger.

Fatal if inhaled.

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

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

May cause respiratory irritation.

Prevention

Wash hands and exposed skin thoroughly after handling.

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

Do not breathe dust, fume, mist, vapors or spray.

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. Immediately 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 immediately 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.

Disposal

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

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2.3 Other hazards:

Closed containers may rupture violently under conditions of extreme heat or if contents are contaminated with water.

Section 3: Composition/Information on Ingredients

Chemical Name	CAS No.	Wt. %	GHS Classification
Methylene bis(4-cyclohexylisocyanate) Common name: HMDI	5124-30-1	99.5 - 100	Acute tox. 2; H330 Skin Irrit. 2; H315 Eye Irrit. 2A ; H319 Skin Sens. 1; H317 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: Remove person to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Immediately 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.

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).

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.

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:

See Section 11 of this SDS where additional symptoms and important health effects are described.

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

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: Severe irritation of the eye tissue and possible clouding of the cornea.

Skin Contact: Severe irritation of the skin with symptoms of marked inflammation, rash or redness of the skin, swelling and possible blisters. Repeated skin contact with this material may cause skin sensitization in humans. Further skin contact may result in inflammation, rash, itching and staining.

Ingestion: Swallowing is expected to cause irritation of the tissues of the mouth, throat and digestive tract, abdominal pain, nausea and vomiting. Onset of symptoms may be delayed.

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

Urgent medical attention is required if inhaled or if allergy symptoms develop.

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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:

During a fire, products of combustion may include 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:

Fire poses the risk of pressure build-up and rupture releasing very toxic gases, vapors or fumes.

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.

Isolate spill area, preventing entry by unauthorized persons.

Ventilate area of spill.

A vapor suppressing foam may be used to reduce vapors.

Do not get water on spilled substance or inside containers.

Do not touch or walk through spilled material.

Stop the leak if you can do it without risk.

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, bags 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.

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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.

Prevent skin contact with all materials containing isocyanate, including pre-polymers, reaction products and mixtures containing Methylene bis(4-cyclohexylisocyanate). Spray applications and heating increase the potential for exposure. Use only in a well-ventilated area.

Wear respiratory protection when handling heated product or if spraying.

Heated containers at 40 – 50°C may release isocyanate vapors; respiratory protection, eye and skin protection are necessary when opening and handling heated containers.

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. Keep contents away from moisture; reacts 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.

Recommended storage temperature: 25– 50°C (77 – 104°F).

Protect from freezing. Product will crystallize below 25°C (77°F).

Incompatible with copper and copper alloys, brass and bronze, and zinc.

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
Methylene bis(4-cyclohexylisocyanate)	0.005 ppm	Ceiling: 0.01 ppm 0.11 mg/m ³	NIOSH Ceiling: 0.01 ppm; 0.11 mg/m ³ Ontario (Canada) TWA: 0.005 ppm Ceiling limit: 0.02 ppm 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 Exposure controls:

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

Spray application increases the potential for inhalation and dermal exposures.

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 vapour or mist into the workplace.

Monitor the workplace air for the presence of isocyanate vapor, mist 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.

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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. When there is the potential for exposure to isocyanate vapor or mist, wear a full-body permeation-resistant suit. Evaluate resistance under conditions of use and maintain protective clothing carefully.

Respiratory protection: Airborne concentrations of Methylene bis(4-cyclohexylisocyanate) may exceed the occupational exposure limits when the product is sprayed, aerosolized or heated. When airborne concentrations 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, equipped with an end-of-service life indicator (ESLI) 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 HMDI concentrations in air:

Up to 0.1 ppm:

(APF = 10) Any supplied-air respirator

Up to 0.25 ppm:

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

Up to 0.5 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 having an N100, R100, or P100 filter, or any appropriate escape-type, self-contained breathing apparatus.

8.3 Individual protection measures:

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.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

Appearance:	Liquid. Colorless.
Odor:	Pungent, irritating odor of isocyanates. Induces tears.
Odor threshold:	Not available
pH:	Not available
Melting point/freezing point:	2 – 5°C (35.6 – 41°F)
Initial boiling point and boiling range:	167°C (332.6°F) decomposes
Flash point:	200°C (392°F)
Flammability:	Product can burn if strongly heated or involved in a fire.
Auto-ignition temperature:	Not available
Upper/lower flammability or explosive limits:	Not available
Evaporation rate:	Not available
Vapor pressure:	0.0021 Pa @ 25°C
Vapor density:	9 (air = 1)
Relative density:	1.07 (water = 1)
Solubility (ies):	Insoluble in water; reacts with water
Partition coefficient (n-octanol/water):	Not available; reacts with water
Decomposition temperature:	300°C (572°F)
Viscosity:	30 - 37 mPa.s @ 25°C (dynamic)

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Section 10: Stability and Reactivity

10.1 Reactivity:

Reacts with water, Tertiary amines, Strong bases, Alcohols, Metal compounds (e.g. organotin catalysts).

10.2 Chemical stability:

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. May attack and make brittle many plastic and rubber materials.

10.3 Possibility of hazardous reactions:

Contact with water or humidity may cause a slow reaction, forming carbon dioxide which could rupture closed containers. Methylene bis(4-cyclohexylisocyanate) may undergo uncontrolled exothermic polymerization upon contact with incompatible materials or if heated above 170°C. The resulting pressure build-up could 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 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: Exposure to aerosols can be toxic if inhaled however this product has an insignificant vapor pressure and does not form aerosols when used for its intended purpose; inhalation of aerosols and vapors is not considered a relevant route of exposure. Airborne exposures are unlikely to occur unless product is heated or forms an aerosol or mist during pouring, frothing or spraying operations.

HMDI caused pulmonary irritation and a decline in respiratory rate in mice exposed to aerosol concentrations ranging from 17-67 mg/m³ for 4 hours.

Some people may become sensitized to isocyanate compounds causing allergy or asthma symptoms or breathing difficulties if inhaled.

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: 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.

Ingestion: Animal studies indicate that ingested HMDI has low oral toxicity. Swallowing may result in irritation and corrosion of the mouth, throat and digestive tract.

Skin corrosion / irritation: Severe skin irritant in animal studies. Application of undiluted HMDI to the intact skin of rabbits for 24 hours produced corrosive injury.

Serious eye damage / irritation: HMDI causes severe eye irritation and corneal injury in rabbits.

Acute Toxicity Data

<u>Ingredient</u>	<u>LD₅₀ Oral</u>	<u>LD₅₀ Dermal</u>	<u>LC₅₀ Inhalation</u>
Methylene bis(4-cyclohexylisocyanate) (HMDI)	1650 mg/kg (rat)	>10000 mg/kg (rabbit)	295 – 434 mg/m ³ / 4 hrs. (rat) as aerosol

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11.2 Information on acute health effects:

STOT (Specific Target Organ Toxicity) – Single exposure: HMDI is a severe respiratory irritant, based on information from animal tests.

Aspiration hazard: Data not available.

11.3 Information on delayed and chronic health effects:

STOT (Specific Target Organ Toxicity) – Repeated exposure: Long-term, low-level inhalation exposure to HMDI may cause severe, permanent respiratory impairment.

Sensitization - respiratory and/or skin: Isocyanates are known to cause respiratory and skin sensitization in humans. Animal tests have demonstrated that respiratory sensitization can result from skin contact with diisocyanates. Respiratory sensitization can develop in people working with HMDI. Symptoms may initially appear to be a cold or mild hay fever; severe asthmatic symptoms can develop and include wheezing, chest tightness, shortness of breath, difficulty breathing and/or coughing. Fever, chills, general feelings of discomfort, headache and fatigue can also occur. Symptoms may occur immediately upon exposure or may be delayed. Sensitized people who continue to work with HMDI may develop symptoms sooner after each exposure. The number and severity of symptoms may increase. HMDI and other isocyanates may also cause hypersensitivity pneumonitis, another allergic lung disease, which is characterized by symptoms such as shortness of breath, fever, tiredness, non-productive cough, and chills.

Carcinogenicity: 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: Not known to be mutagenic. Overall, tests assessing the mutagenic potential of HMDI in vitro and in vivo provide no convincing evidence of mutagenic and genotoxic activity.

Interactive effects: Cross-sensitization between different diisocyanate substances may occur (respiratory and/or skin sensitization).

Section 12: Ecological Information

12.1 Toxicity:

96 Hr LC₅₀ *Brachydanio rerio*: 1.2 mg/L
96 Hr LC₅₀ *Brachydanio rerio*: 1.2-2.76 mg/L

12.2 Persistence and degradability:

Not readily biodegradable.

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

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Section 14: Transport Information

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

UN Number : UN3082

14.2 Shipping name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (Methylene bis(4-cyclohexylisocyanate))

14.3 Transport hazard class(es):

Class 9

14.4 Packing group:

PG III

14.5 Environmental hazards:

Not available

14.6 Special precautions for user:

Keep away from moisture and water. Breathing aerosols can be toxic. Severe irritant to skin, eyes and respiratory tract.

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

Not available

14.8 Transport Regulations:

IATA Dangerous Goods Regulations: UN3334, AVIATION REGULATED LIQUID N.O.S. (Methylene bis(4-cyclohexylisocyanate)), Class 9, PG III

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:**USA****TSCA Status:** 1,1-Methylenebis(4-isocyanatocyclohexane) is listed on the TSCA inventory and designated as "Active" in U.S. Commerce..**SARA Title III :** Sec. 313 1,1-Methylenebis(4-isocyanatocyclohexane), 1% de minimis**Canada****NSNR Status:** Methylene bis(4-cyclohexylisocyanate) is listed on the on the DSL.**European Inventories:** Methylene bis(4-cyclohexylisocyanate) is listed on EINECS 225-863-2.**Mexico****Pollutant Release and Transfer Register:** Reporting Emissions Threshold Quantity TDI: 100 kg/year (Cyclohexane, 1,1'-methylenebis[4-isocyanato-])**International Inventories:****Australia:** Listed on the Inventory of Chemical Substances (AICS).**China:** Listed on the Chemical Inventory (IECSC).**Japan:** Listed on the inventory Existing and New Chemical Substances (ENCS).**Korea:** Listed on the inventory - Existing Chemical Inventory.**Mexico:** Listed on the inventory (INSQ).**New Zealand:** Listed on the Chemical Inventory (NZIoC).**Philippines:** Listed on the Inventory of Chemicals and Chemical Substances (PICCS).**Taiwan:** Listed on the Chemical Inventory (TCSI).**Turkey:** Listed on the Inventory of Chemicals.

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Section 16: Other Information

Revision date:

August 26, 2020

Revision summary:

Previous version issued February 2017.

Revisions since previous version:

Section 4.1 – Skin contact

Section 14 – revised transport

References and sources for data:

CCOHS, Cheminfo Profile

IARC monographs on the evaluation of carcinogenic risks to humans. Vol. 71

RTECS, Registry of Toxic Effects of Chemical Substances

Manufacturer's SDS

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

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.