

Cyanuric fluoride

sc-252643



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Cyanuric fluoride

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

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EMERGENCY

ChemWatch
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(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

C3-F3-N3, "s-triazine, 2, 4, 6-trifluoro-", fluorotriazine, cyanurfluoride, "cyanuric acid fluoride", "cyanuric trifluoride", "cyanuryl fluoride", "s-triazine trifluoride", trifluorocyanidine, trifluoro-s-triazine, sym-trifluorotriazine, "1, 3, 5-trifluorotriazine", "2, 4, 6-trifluorotriazine", "2, 4, 6-trifluoro-s-triazine", "2, 4, 6-trifluoro-1, 3, 5-triazine", "tricyanogen fluoride"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	4	
Body Contact:	4	
Reactivity:	2	
Chronic:	2	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Reacts violently with water.
Toxic in contact with skin.
Causes burns.
Risk of serious damage to eyes.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Accidental ingestion of the material may be severely damaging to the health of the individual; animal experiments indicate that ingestion of less than 5 gram may be fatal.
- Single and repeated dose studies in animals by oral and skin routes of cyanuric acid and some cyanurates generally show a low degree of toxicity.

At high doses several studies showed kidney damage.

- Ingestion of acidic corrosives may produce burns around and in the mouth.
the throat and esophagus.

EYE

- The material can produce chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
- The material can produce severe chemical burns to the eye following direct contact.

Vapors or mists may be extremely irritating.

- If applied to the eyes, this material causes severe eye damage.
- Irritation of the eyes may produce a heavy secretion of tears (lachrymation).
- Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns.

Mild burns of the epithelia generally recover rapidly and completely.

SKIN

- The material can produce chemical burns following direct contact with the skin.
- Skin contact with the material may produce toxic effects; systemic effects may result following absorption.
- The material can produce severe chemical burns following direct contact with the skin.
- Fluorides are easily absorbed through the skin and cause death of soft tissue and erode bone.

Healing is delayed and death of tissue may continue to spread beneath skin.

- Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

- Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.

INHALED

- The material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

- Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may produce severely damaging effects.

to the health of the individual.

- Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary edema.
- Acute effects of fluoride inhalation include irritation of nose and throat, coughing and chest discomfort.

A single acute over-exposure may even cause nose bleed.

CHRONIC HEALTH EFFECTS

- Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Extended exposure to inorganic fluorides causes fluorosis, which includes signs of joint pain and stiffness, tooth discoloration, nausea and vomiting, loss of appetite, diarrhea or constipation, weight loss, anemia, weakness and general unwellness. There may also be frequent urination and thirst.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
cyanuric fluoride	675-14-9	>98
reacts with moisture/water to produce		
hydrogen fluoride	7664-39-3	

Section 4 - FIRST AID MEASURES

SWALLOWED

· For advice, contact a Poisons Information Center or a doctor at once. · Urgent hospital treatment is likely to be needed.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested. Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. Corrosive substances may cause lung damage (e.g.

NOTES TO PHYSICIAN

■ Following acute or short term repeated exposure to hydrofluoric acid:

· Subcutaneous injections of Calcium Gluconate may be necessary around the burnt area. Continued application of Calcium Gluconate Gel or subcutaneous Calcium Gluconate should then continue for 3-4 days at a frequency of 4-6 times per day. If a "burning" sensation recurs, apply more frequently.

· Systemic effects of extensive hydrofluoric acid burns include renal damage, hypocalcemia and consequent cardiac arrhythmias. Monitor hematological, respiratory, renal, cardiac and electrolyte status at least daily. Tests should include FBE, blood gases, chest X-ray, creatinine and electrolytes, urine output, Ca ions, Mg ions and phosphate ions. Continuous ECG monitoring may be required.

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung edema often do not manifest until a few hours have passed and they are aggravated by physical effort.

Hydrolysis yields hydrofluoric acid.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.574
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

- DO NOT use water.
- Foam.
- Dry chemical powder.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

■ Combustion products include: carbon dioxide (CO₂), hydrogen fluoride, nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

- Combustible.
- Slight fire hazard when exposed to heat or flame.

FIRE INCOMPATIBILITY

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

Glasses:

Full face- shield.

Gloves:

Respirator:

Type B-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- Lined metal can, Lined metal pail/drum
- Plastic pail.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - Northwest Territories Occupational Exposure Limits (English)	cyanuric fluoride (Fluoride (as F))		2.5		5				
Canada - Nova Scotia Occupational Exposure Limits	cyanuric fluoride (Fluorides (as F))		2.5						TLV Basis: bone damage; fluorosis. BEI
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	cyanuric fluoride (Fluorides (as F))		2.5						
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	cyanuric fluoride (Fluoride, (as F))		2.5		5				
US - Alaska Limits for Air Contaminants	cyanuric fluoride (Fluorides (as F))	2.5							
US - Michigan Exposure Limits for Air Contaminants	cyanuric fluoride (Fluorides (as F))		2.5						
US - Minnesota Permissible Exposure Limits (PELs)	hydrogen fluoride (Hydrogen fluoride (as F))	3		6					
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)	hydrogen fluoride (HYDROGEN FLUORIDE)	0.02							
Canada - British Columbia Occupational Exposure Limits	hydrogen fluoride (Hydrogen fluoride, as F)					2			

US ACGIH Threshold Limit Values (TLV)	hydrogen fluoride (Hydrogen fluoride)	0.5			2		Measured as F. TLV Basis: upper and lower respiratory tract, skin & eye irritation; fluorosis
US NIOSH Recommended Exposure Limits (RELs)	hydrogen fluoride (Hydrogen fluoride)	3	2.5		6	5	(Ceiling ([15-minute]))
Canada - Alberta Occupational Exposure Limits	hydrogen fluoride (Hydrogen fluoride, as F)	0.5	0.4		2	1.6	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	hydrogen fluoride (Hydrogen fluoride (as F))	3		6			
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	hydrogen fluoride (Hydrogen fluoride (as F))		See Table Z-2				
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	hydrogen fluoride (Hydrogen fluoride (as F))	3		6			
US - Idaho - Acceptable Maximum Peak Concentrations	hydrogen fluoride (Hydrogen Fluoride (Z37.26-1969))	3					
US - California Permissible Exposure Limits for Chemical Contaminants	hydrogen fluoride (Hydrogen fluoride, as F)	3	2.5		6		
US - Idaho - Limits for Air Contaminants	hydrogen fluoride (Hydrogen fluoride (as F))		[2]				
US - Alaska Limits for Air Contaminants	hydrogen fluoride (Hydrogen fluoride (as F))	3		6			
US - Michigan Exposure Limits for Air Contaminants	hydrogen fluoride (Hydrogen fluoride (as F))	3		6			
US - Hawaii Air Contaminant Limits	hydrogen fluoride (Hydrogen fluoride (as F))	3		6			
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	hydrogen fluoride (Hydrogen fluoride)	3	2	3	2		
US - Washington Permissible exposure limits of air contaminants	hydrogen fluoride (Hydrogen fluoride)				3		

Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits

hydrogen fluoride (Hydrogen fluoride, (as F)) 0.5

Canada - Northwest Territories Occupational Exposure Limits (English)

hydrogen fluoride (Hydrogen fluoride (as F))	3	2.5	6	4.9
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US - Wyoming Toxic and Hazardous Substances Table Z-2 Acceptable ceiling concentration, Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift

hydrogen fluoride (Hydrogen fluoride (Z37.28-1969)) 3

Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)

hydrogen fluoride (Hydrogen fluoride (as F))	3	2.6
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US - Oregon Permissible Exposure Limits (Z-2)

hydrogen fluoride (Hydrogen fluoride (Z37.28-1969)) 3

Canada - Nova Scotia Occupational Exposure Limits	hydrogen fluoride (Hydrogen fluoride)	0.5	2	Measured as F. TLV Basis: upper and lower respiratory tract, skin & eye irritation; fluorosis
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Canada - Prince Edward Island Occupational Exposure Limits	hydrogen fluoride (Hydrogen fluoride)	0.5	2	Measured as F. TLV Basis: upper and lower respiratory tract, skin & eye irritation; fluorosis
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ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

- type b-p filter of sufficient capacity.
- Consult your EHS staff for recommendations

EYE

- Chemical goggles.
- Full face shield.

HANDS/FEET

- Elbow length PVC gloves.

- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.
- Safety glasses with side shields.
- Chemical goggles.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Polyethylene gloves.

OTHER

- Overalls.
- PVC Apron.

ENGINEERING CONTROLS

- Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Corrosive.

Acid.

Toxic or noxious vapours/gas.

Reacts violently with water.

State	LIQUID	Molecular Weight	135.05
Melting Range (°F)	Not available	Viscosity	Not Applicable
Boiling Range (°F)	162- 165	Solubility in water (g/L)	Reacts violently
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.574
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	4.7
Volatile Component (%vol)	Not available	Evaporation Rate	Not applicable

APPEARANCE

Colourless liquid; reacts with water to form corrosive and toxic acids. Soluble in chloroform, carbon tetrachloride, hot ether, dioxane, ketones.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Segregate from alcohol, water.

Avoid reaction with oxidizing agents.

- Keep dry.
- NOTE: May develop pressure in containers; open carefully. Vent periodically.
- Avoid strong acids, bases.

WARNING:

May decompose violently or explosively on contact with other substances.

· This substance is one of the relatively few compounds which are described as "endothermic" i.e. heat is absorbed into the compound, rather than released from it, during its formation.

· The majority of endothermic compounds are thermodynamically unstable and may decompose explosively under various circumstances of initiation.

· Many but not all endothermic compounds have been involved in decompositions, reactions and explosions and, in general, compounds with significantly positive values of standard heats of formation, may be considered suspect on stability grounds.

BRETHERRICK L.: Handbook of Reactive Chemical Hazards.

Acyl halides tend to react violently with protic organic solvents, water, and the aprotic solvents, dimethylformamide and dimethyl sulfoxide. Their facile reaction with ethers is also potentially dangerous.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

cyanuric fluoride

TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.
■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

CYANURIC FLUORIDE:

TOXICITY IRRITATION

Inhalation (rat) LC50: 3100 ppb/4h !! Nil Reported

Dermal (rabbit) LD50: 160 mg/kg

Lacrymation, excitement, bronchiolar constriction, chronic pulmonary oedema, dyspnea recorded.

Carcinogenic by RTECS criteria.

TOXICITY IRRITATION

HYDROGEN FLUORIDE:

Inhalation (human) LCLo: 50 ppm/30 m

Eye
(human):
50 mg -
SEVERE

Inhalation (man) TCLo: 100 mg/m³/1 m

Inhalation (rat) LC50: 1276 ppm/1 h

■ The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

CARCINOGEN

hydrogen fluoride US - Rhode Island Hazardous Substance List IARC

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
cyanuric fluoride	HIGH	No Data Available	LOW	MED
hydrogen fluoride	No Data Available	No Data Available	LOW	

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

B. Component Waste Numbers

When hydrogen fluoride is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or a spill residue, use EPA waste number U134 (waste code C,T).

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

· Reduction

- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: G Hazard class or Division: 6.1

Identification Numbers: UN2927 PG: I

Label Codes: 6.1, 8 Special provisions: T14, TP2, TP13, TP27

Packaging: Exceptions: None Packaging: Non- bulk: 201

Packaging: Exceptions: None Quantity limitations: 0.5 L

Passenger aircraft/rail:

Quantity Limitations: Cargo 2.5 L Vessel stowage: Location: B aircraft only:

Vessel stowage: Other: 40

Hazardous materials descriptions and proper shipping names:

Toxic liquids, corrosive, organic, n.o.s.

Air Transport IATA:

ICAO/IATA Class: 6.1 (8) ICAO/IATA Subrisk: None

UN/ID Number: 2927 Packing Group: I

Special provisions: A4

Cargo Only

Packing Instructions: 2.5 L Maximum Qty/Pack: 657

Passenger and Cargo Passenger and Cargo

Packing Instructions: 0.5 L Maximum Qty/Pack: 651

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden

Shipping Name: TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.

*(CONTAINS CYANURIC FLUORIDE)

Maritime Transport IMDG:

IMDG Class: 6.1 IMDG Subrisk: 8

UN Number: 2927 Packing Group: I

EMS Number: F-A, S-B Special provisions: 274 315

Limited Quantities: 0

Shipping Name: TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (contains cyanuric fluoride)

Section 15 - REGULATORY INFORMATION

cyanuric fluoride (CAS: 675-14-9) is found on the following regulatory lists;

"Canada Non-Domestic Substances List (NDSL)", "US - Massachusetts Oil & Hazardous Material List", "US - New Jersey Right to Know Hazardous Substances", "US - Oregon Hazardous Materials", "US - Pennsylvania - Hazardous Substance List", "US - Wyoming List of Highly Hazardous Chemicals, Toxics and Reactives", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act", "US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives", "US SARA Section 302 Extremely Hazardous Substances", "US Toxic Substances Control Act (TSCA) - Inventory"

Regulations for ingredients

hydrogen fluoride (CAS: 7664-39-3) is found on the following regulatory lists;

"Canada - Alberta Ambient Air Quality Objectives", "Canada - Alberta Occupational Exposure Limits", "Canada - British Columbia Occupational Exposure Limits", "Canada - Northwest Territories Occupational Exposure Limits (English)", "Canada - Nova Scotia Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits", "Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)", "Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits", "Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances", "Canada Domestic Substances List (DSL)", "Canada Environmental Quality Guidelines (EQGs) Air", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada National Pollutant Release Inventory (NPRI)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "OECD Representative List of High Production Volume (HPV) Chemicals", "The Australia Group Export Control List: Chemical Weapons Precursors", "US - Alaska Limits for Air Contaminants", "US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELS)", "US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELS)", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - California Toxic Air Contaminant List Category II", "US - Connecticut Hazardous Air Pollutants", "US - Hawaii Air Contaminant Limits", "US - Idaho - Acceptable Maximum Peak Concentrations", "US - Idaho - Limits for Air Contaminants", "US - Massachusetts Oil & Hazardous Material List", "US - Michigan Exposure Limits for Air Contaminants", "US - Minnesota Hazardous Substance List", "US - Minnesota

Permissible Exposure Limits (PELs),"US - New Jersey Right to Know Hazardous Substances","US - Oregon Hazardous Materials","US - Oregon Permissible Exposure Limits (Z-1)","US - Oregon Permissible Exposure Limits (Z-2)","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Hazardous Constituents","US - Vermont Hazardous wastes which are Discarded Commercial Chemical Products or Off-Specification Batches of Commercial Chemical Products or Spill Residues of Either","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Dangerous waste constituents list","US - Washington Discarded Chemical Products List - ""U"" Chemical Products","US - Washington Permissible exposure limits of air contaminants","US - Wyoming List of Highly Hazardous Chemicals, Toxics and Reactives","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US - Wyoming Toxic and Hazardous Substances Table Z-2 Acceptable ceiling concentration, Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift","US ACGIH Threshold Limit Values (TLV)","US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)","US CERCLA Priority List of Hazardous Substances","US Clean Air Act - Hazardous Air Pollutants","US CWA (Clean Water Act) - List of Hazardous Substances","US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances","US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Acute Exposure Guideline Levels (AEGs) - Final","US EPA Master Testing List - Index I Chemicals Listed","US EPCRA Section 313 Chemical List","US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives","US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act","US NFPA 45 Fire Protection for Laboratories Using Chemicals - Flammability Characteristics of Common Compressed and Liquefied Gases","US NIOSH Recommended Exposure Limits (RELs)","US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US OSHA Permissible Exposure Levels (PELs) - Table Z2","US Postal Service (USPS) Hazardous Materials Table: Postal Service Mailability Guide","US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261","US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Wastes","US SARA Section 302 Extremely Hazardous Substances","US Toxic Substances Control Act (TSCA) - Inventory"

Section 16 - OTHER INFORMATION

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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