SAFETY DATA SHEET

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

1. Identification

Product identifier	**Hydrochloric Acid**
Other means of identification	Muriatic Acid, Hydrogen Chloride in Solution, HCl
Recommended use	Acidification of petroleum wells, scale removal, ore reduction, metal cleaning, industrial acidification.
Recommended restrictions	None known

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	ERCO Worldwide LP
Address	5050 Satellite Drive Mississauga, ON L4W 0G1 Canada
Telephone	(416) 239-7111 (M- F: 8:00 am – 5:00pm EST)
Website	http://www.ercoworldwide.com
E-mail	productinfo@ercoworldwide.com
Emergency phone number	Canada & USA: 1-800-424-9300 (CHEMTREC)

Supplier Refer to Manufacturer

2. Hazard(s) Identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation (mist)	Category 4
	Skin corrosion	Category 1
	Serious eye damage	Category 1
	Specific target organ toxicity, single exposure (respiratory tract irritation)	Category 3

Environmental hazards Not currently regulated by the Canadian Hazardous Products Regulation (WHMIS 2015), refer to Section 12 for additional information.

Label elements

Signal word Danger

Hazard statement May be corrosive to metals.

Harmful if swallowed.
Harmful if inhaled.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary statement

Prevention Keep only in original packaging. Wear protective gloves, protective clothing, eye protection, face protection. Do not eat, drink or smoke when using this product. Do not breathe mists, vapours or sprays. Wash hands and face thoroughly after handling. Use only outdoors or in a well-ventilated area.

Response **IF SWALLOWED:** Call a Poison Center or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a Poison Center or doctor.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a Poison CENTER or doctor.
IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before re-use.

Absorb spillage to prevent material damage.

Storage Store in a corrosion resistant container with a resistant inner liner. Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal Dispose of contents and containers in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Not applicable.

3. Composition/Information on Ingredients

Chemical name	Common name and synonyms	CAS number	Conc. % By Weight
Hydrochloric Acid	Muriatic Acid, Hydrogen Chloride in Solution	7647-01-0	20 – 36.5 w/w%
Dihydrogen Oxide	Water	7732-18-5	Balance

Chemical name of impurities, stabilizing solvents and/or additives: None

4. First-Aid Measures

Inhalation

Remove person to fresh air and keep comfortable for breathing. If victim is unconscious, do not give anything by mouth. Check breathing and pulse. If breathing is difficult, trained personnel should give oxygen. If breathing stops, trained personnel should provide artificial respiration. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If heart has stopped, give cardiopulmonary resuscitation (CPR) immediately. If breathing becomes rapid and bubbly, place the person in a sitting position, and give oxygen if possible. Immediately call a POISON CENTER or doctor/physician.

Skin Contact

Immediately flush skin with running water for at least 20 minutes. Under running water, remove contaminated clothing, shoes and leather goods. Cover wound with sterile dressing. Do not rub area of contact. Wash contaminated clothing before reuse. Leather and shoes that have been contaminated with the solution may need to be destroyed. Immediately call a POISON CENTER or doctor/physician.

Eye Contact

Immediately flush eyes with plenty of water for at least 20 minutes, holding the eyelid(s) open. Remove contact lenses, if present and easy to do. Continue rinsing. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER or doctor/physician.

Ingestion

Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions. If the victim can swallow, give one cup of water or milk to dilute the material in the stomach. If vomiting occurs naturally, rinse mouth and give water again. Otherwise, rinse residual hydrochloric acid from the mouth with water. Immediately call a POISON CENTER or doctor/physician.

Most important symptoms/effects, acute and delayed

May be fatal if inhaled. Can cause severe respiratory irritation. Symptoms may include coughing, choking and wheezing.
Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.
Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring.
Corrosive to the eyes and may cause severe damage including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death.

Indication of immediate medical attention and special treatment needed	Immediate medical attention is required. Causes chemical burns. May be fatal if inhaled or swallowed. Provide general supportive measures and treat symptomatically. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-Fighting Measures

Suitable extinguishing media	Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical. Use water with caution. Contact with water will generate considerable heat.
Unsuitable extinguishing media	Use chemical extinguishing agents with caution. Some chemical extinguishing agents may react with this material.
Specific hazards arising from the chemical	Not considered flammable. Vapors are heavier than air and may spread along floors. Contact with most metals will generate flammable hydrogen gas. Contact with water will generate considerable heat. Reacts violently with a wide variety of organic and inorganic chemicals including alcohol, carbides, chlorates, picrates, nitrates and metals. Toxic fumes, gases or vapours may evolve on burning.
Special protective equipment and precautions for firefighters:	Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. A full-body chemical resistant suit should be worn.
Firefighting equipment/instructions	Fight fire with normal precautions from a reasonable distance. Evacuate the area promptly. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. Do not allow run-off from firefighting to enter drains or water courses. Dike for water control.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
Hazardous combustion products	None known. In the event of fire the following can be released: Chlorine. Hydrogen. Hydrogen chloride gas.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate

protective clothing. Ventilate closed spaces before entering them. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Only persons wearing protective equipment should be allowed in areas of leaks. Ventilate the area. Remove sources of ignition. Stop leak if you can do so without risk. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Use water spray to reduce vapors or divert vapor cloud drift.
Small Spills: Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand). Dilute acid with water and neutralize with Sodium Carbonate (soda ash) or lime. Use caution when neutralizing. Neutralization may release Carbon dioxide, so use caution.
Large Spills: Prevent entry into waterways, sewer, basements or confined areas. If not recoverable, dilute with water or flush to holding area and neutralize. Remove with vacuum trucks or pump to storage/salvage vessels. Contact the proper local authorities.
Never return spills to original containers for re-use. Contaminated absorbent material may pose the same hazards as the spilled product. For waste disposal, see Section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.

7. Handling and Storage

Precautions for safe handling

Use only outdoors or in a well-ventilated area. Wear chemically resistant protective equipment during handling. Wear protective gloves/clothing and eye/face protection. Do not breathe mist. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Keep away from heat. Keep away from metals and other incompatibles. When preparing or diluting solution, always add to water, slowly and with stirring. Never add water to the product. Label containers appropriately. Wash thoroughly after handling. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Store away from incompatible materials (see Section 10 of the SDS). Keep away from heat, sparks and open flame.

8. Exposure Controls/ Personal Protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Hydrochloric Acid (CAS 7647-01-0)	Ceiling	7 mg/m3 5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Hydrochloric Acid (CAS 7647-01-0)	Ceiling	2 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hydrochloric Acid (CAS 7647-01-0)	Ceiling	7 mg/m3 5 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. All must be corrosion resistant. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and quick drench facilities in areas of use.

Individual protection measures, such as personal protective equipment:

Eye/face protection Chemical goggles and face shield are recommended. Wear a full-face respirator, if needed.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Wear as appropriate: Butyl rubber. Nitrile. Neoprene. Advice should be sought from glove suppliers.

Other Where contact is likely, wear chemical-resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment. A NIOSH/MSHA approved air-purifying respirator with the appropriate chemical cartridges or a positive-pressure, air-supplied respirator may be used to reduce exposure. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134). Advice should be sought from respiratory protection specialists. <50ppm - Supplied air respirator, self-contained

breathing apparatus, chemical cartridge respirator, or a powered air purifying respirator both with cartridge(s) to protect against hydrogen chloride.
>50ppm - Full-facepiece supplied air respirator, or full-facepiece self-contained breathing apparatus. Impervious gloves, body suits, boots and/or other protective clothing.

Thermal Hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Do not breathe mist. Avoid contact with eyes, skin and clothing. When using, do not eat, drink or smoke. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Appearance	Colorless or slightly yellow, fuming liquid
Physical state	Liquid
Form	Fuming Liquid
Colour	Colorless to light yellow
Odor	Pungent
Odor threshold	1 - 5 ppm (detectable)
pH	0.1 - 1
Melting point/ Freezing point	For product range of concentrations: -57.22°C (-71°F) to -27°C (-17°F)
Initial boiling point and boiling range	For product range of concentrations: 107.78°C (226°F) to 53°C (127°F)
Flash point	Not Applicable
Evaporation rate	Not Available
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	
Flammability limit – lower (%)	Not Applicable
Flammability limit – upper (%)	Not Applicable
Explosive limit – lower (%)	Not Applicable
Explosive limit – upper (%)	Not Applicable
Vapor pressure	For product range of concentrations: 0.01 mmHg to 200 mmHg
Vapor pressure temp.	20°C (68°F)
Vapor density	1.268
Relative density	For product range of concentrations: 1.102 g/cm3 to 1.188 g/cm^3
Solubility (ies)	
Solubility (water)	Soluble
Solubility (other)	Very soluble in ethanol, methanol, dioxane and tetrahydrofuran. Insoluble in hydrocarbons (e.g. n-Hexane).
Partition coefficient (n-octanol/water)	Not Available
Auto-ignition temperature	Not Applicable

Decomposition temperature	Not Available
Viscosity	Not Available
Other information	
Specific gravity	1.18

10. Stability and Reactivity

Reactivity

Contact with most metals will generate flammable hydrogen gas. Contact with water will generate considerable heat. May be corrosive to metals. May be corrosive to: Aluminum. Stainless steel. Carbon steel. Copper. Bronze. Large amounts of heat can be released when mixed with strong sulfuric acid, alkalis, or with organic solvents.

Chemical stability

Material is stable under normal conditions.

Possibility of hazardous reactions

Reacts violently with a wide variety of organic and inorganic chemicals including alcohol, carbides, chlorates, picrates, nitrates and metals. Aldehydes and epoxides in the presence of hydrochloric acid cause violent polymerization. Alcohol and glycols in the presence of hydrochloric acid lead to dehydration reactions.

Conditions to Avoid

Avoid high temperatures. Avoid contact with incompatible materials. Do not use in areas without adequate ventilation.

Incompatible materials

Metals. Bases. Strong oxidizing agents. Strong reducing agents. Aldehydes. Epoxides. Carbides. Picrates. Nitrates. Alcohols. Fluorine. Water, moisture. Strong acids. Acetylides. Borides.

METALS (e.g. steel, aluminum, magnesium or zinc) - extremely flammable hydrogen gas is released on reaction with many common metals.

SODIUM - explodes on contact.

BASES (e.g. sodium hydroxide, potassium hydroxide, ammonium hydroxide, amines, 2-aminoethanol or ethyleneimine) - react violently generating heat and pressure.

FORMALDEHYDE - can react to form the potent human carcinogen, bis(chloromethyl) ether.

OXIDIZING AGENTS (e.g. hydrogen peroxide, chlorates or chlorites) - may react generating heat and very toxic and corrosive chlorine gas.

REDUCING AGENTS (e.g. metal hydrides) - reaction may produce extremely flammable hydrogen gas, heat and fire.

PERCHLORIC ACID - decomposes spontaneously and violently.

SULFURIC ACID - dehydrates concentrated hydrochloric acid to release some 250 volumes of hydrogen chloride gas. In a closed tank, sufficient gas may be formed to cause the tank to burst violently.

POTASSIUM PERMANGANATE - a sharp explosion may be produced on adding concentrated hydrochloric acid to potassium permanganate.

ALDEHYDES or EPOXIDES - hydrochloric acid may catalyze violent polymerization, generating heat and pressure.

FLUORINE - incandesces on contact. Aqueous solutions produce flame.

ACETYLIDES (e.g. cesium acetylide or rubidium acetylide), BORIDES (e.g. magnesium boride), CARBIDES (e.g. rubidium carbide), PHOSPHIDE (e.g. uranium phosphide) or SILICIDES (e.g. lithium silicide) - react producing spontaneously flammable gases (e.g. acetylene, borane, phosphine or silane, respectively).
HEXALITHIUM DISILICIDE - incandesces in concentrated acid; flammable silanes (silicon hydrides) are evolved on contact with dilute acid.
OTHER - Mixing 36% hydrochloric acid with acetic anhydride or chlorosulfonic acid or oleum or propiolactone or propylene oxide or vinyl acetate in a closed container caused the temperature and pressure to increase.

Hazardous decomposition products

None known. In the event of fire the following can be released: Chlorine. Hydrogen. Hydrogen chloride gas.
HCl gas evolution from the solution is accelerated by heating.

11.Toxicological Information

Information on likely routes of exposure

Inhalation

Harmful if inhaled. Vapour or mist can cause irritation of the nose, throat and upper respiratory tract.

Skin contact

Causes severe skin burns and eye damage. Not expected to be absorbed through the skin.

Eye contact

Causes serious eye damage. Low concentration of vapour or mist can be irritating, causing redness.

Ingestion

Harmful if swallowed. Causes digestive tract burns with consequent pain, nausea, vomiting, thirst, diarrhea, circulatory collapse and possible death.

Symptoms related to the physical, chemical and toxicological characteristics

Can cause severe respiratory irritation. Symptoms may include coughing, choking and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death. Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring. Corrosive to the eyes and may cause severe damage including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity Harmful if inhaled. Harmful if swallowed.

Components	Species	Test Results
Hydrochloric Acid (CAS 7647-01-0)		
Acute		
Dermal		
LD50	Rabbit	> 5010 mg/kg
Inhalation		
LC50	Rat	1.05 - 1.175 mg/l, 4 Hours (mist) 1405 ppm, 4 Hours (Hydrogen chloride gas)
Oral		
LD50	Rat	238 - 277 mg/kg
	Rabbit	900 mg/kg

Skin corrosion Category 1. Causes severe skin burns.

Serious eye damage Category 1 Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not expected to be a respiratory sensitizer.

Skin sensitizer This product is not expected to be a skin sensitizer.

Germ cell mutagenicity Not expected to be mutagenic in humans.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Category 3. May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified as a specific target organ toxicity - repeated exposure.

Aspiration toxicity This product is not classified as an aspiration hazard.

Chronic effects Chronic skin contact with low concentrations may cause dermatitis. In extreme cases, tooth erosion could result.

12. Ecological Information

Ecotoxicity Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems. However, Hydrochloric acid dissociates in water and will be

neutralized by naturally occurring alkalinity. The acid will permeate soil, dissolving some soil material and will be somewhat neutralized. The ingredient ecotoxicity data appearing below is expected to be primarily associated with pH.

Components		Species	Test Results
Hydrochloric Acid (CAS 7647-01-0)			
Aquatic			
Acute			
Algae	EC50	Green algae (Selenastrum capricornutum)	0.492 mg/l, 72 hours
Crustacea	EC50	Water flea (Daphnia magna)	0.492 mg/l, 48 hours
Fish	LC50	Carp (Cyprinus carpio communis)	4.92 mg/l, 96 hours
Chronic			
Algae	NOEC	Green algae (Selenastrum capricornutum)	0.097 mg/l, 72 hours

Persistence and degradability No data is available on the degradability of this product. Biodegradation is not applicable to inorganic substances.

Bio accumulative potential No accumulation in living organisms is expected due to high solubility and dissociation properties.

Mobility in soil High water solubility indicates a high mobility in soil.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents and containers in accordance with local/regional/national/international regulations. Contaminated materials can be neutralized with soda ash (Na_2CO_3), lime (CaO), or limestone ($CaCO_3$). The residual sludge can be shoveled into containers for disposal.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

TDG

Shipping Name (TDGR)	UN Number	Hazard Class	Packing Group
Hydrochloric Acid	1789	8	II

IATA

UN number	UN1789
UN proper shipping name	Hydrochloric Acid
Transport hazard class(es)	
Class	8
Subsidiary risk	None
Packing group	II
Environmental hazards	No
ERG Code	8L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed
Cargo aircraft only	Allowed

IMDG

UN number	UN1789
UN proper shipping name	Hydrochloric Acid
Transport hazard class(es)	
Class	8
Subsidiary risk	None
Packing group	II
Environmental hazards	
Marine pollutant	No
EmS	F-A, S-B
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not Available

IATA; IMDG; TDG

15. Regulatory Information

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16.Other Information

Issue date	4/15/2022
Revision #	12
Revision Indicator	Company logo and address updated.
List of abbreviations	ACGIH: American Conference of Governmental Industrial Hygienists CAS: Chemical Abstract Services CFR: Code of Federal Regulations DSL: Domestic Substance List

EINECS: European Inventory of Existing Commercial chemical Substances
EPA: Environmental Protection Agency
HSDB® - Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IBC: Intermediate Bulk Container
IMDG: International Maritime Dangerous Goods LC: Lethal Concentration
LD: Lethal Dose
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OECD: Organization for Economic Cooperation and Development
OSHA: Occupational Safety and Health Administration
PPE: Personal Protective Equipment
RTECS: Registry of Toxic Effects of Chemical Substances
SDS: Safety Data Sheet
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information System

References

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices (2014) International Agency for Research on Cancer Monographs (2014)
Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2014 (Chempendium, RTECs, HSDB, INCHEM)
Material Safety Data Sheet from manufacturer.
OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2014.

Disclaimer

Information presented in this SDS is furnished in accordance with the Workplace Hazardous Materials Information System (WHMIS).

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