

Section 1 - Chemical Product and Company Identification

Product Name	R-4451
Synonyms	Not available
Product Use	Heat Transfer Fluid, Chemical Intermediate
Restrictions On Use	Not Applicable
Supplier	CFR Chemicals 38451 Range Road 22 County of Red Deer T4E 2N6
General Assistance	1 (877) 269-3419
Emergency Telephone	Not Dangerous Goods – Call General Assistance
Date of Preparation of SDS	June 1, 2018

Section 2 – Hazard Identification

Signal Word Danger
GHS Pictogram(s)



Hazard Statement:	H302	Harmful if swallowed.
Precautionary Statement	P264	Wash skin thoroughly after handling.
	P270	Do not eat, drink or smoke when using this product.
Response	P301 + P312	IF SWALLOWED: Immediately call a POISON Center or doctor/physician.
	P330	Rinse mouth.
Storage		No Statements
Disposal	P501	Dispose of contents/container to an approved waste disposal unit.
GHS Classification		Acute Toxicity (oral) (Category 4)

Section 3 – Composition Information on Ingredients

HAZARDOUS INGREDIENT, Common Name	Hazardous Ingredient, Synonyms	PERCENT	CAS NUMBER
Ethylene Glycol	1,2-ethanediol, EG, Glycol	75 – 85%	107-21-1
Disodium tetraborate, pentahydrate	Not Applicable	15 – 25%	12173-04-3

* = Various ** = Mixture *** = Proprietary

Section 4 - First Aid Measures

Inhalation	Allow victim to breathe fresh air. Allow victim to rest.
Eye Contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower lids. Check for and remove contact lenses. Continue to rinse for at least 15 minutes. Get medical attention if pain, blinking, or redness persist.
Skin Contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Get medical attention immediately. Call a poison control centre or physician. IF alert, rinse mouth and drink ½ to 1 glass of water to help dilute the material. Do not give liquids to a drowsy, convulsion, or unconscious patient. Do NOT induce vomiting. If vomiting occurs, the head should be kept low so vomit does not enter the lungs. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as collar, tie, belt or waistband.
Most Important Symptoms/Effects both Acute and Delayed	Not expected to present a significant hazard under anticipated conditions of normal use.
Note to Physician	No information available.

Section 5 – Fire-Fighting Measures

Flash Point (°C)	Not applicable
Flash Point Method	PMCC
Auto Ignition Temperature	No data available
Conditions of Flammability	Not flammable or combustible.
Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable Extinguishing Media	Water jet.
Unusual Fire/Explosion Hazard	No data available.
Hazardous Combustion Products	Carbon oxides.
Fire Fighting Equipment	Wear appropriate protective equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.
Special Precautions for Firefighters	No data available.

Section 6 – Accidental Release Measures

Personal precautions	Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapour can accumulate in low areas.
-----------------------------	--

Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods and materials for containment and cleaning up	Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

Section 7 – Handling and Storage

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Conditions for safe storage	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Hygroscopic.
Incompatible Materials	Strong Acids, Strong Bases.

Section 8 – Exposure Controls / Personal Protection

Occupational Exposure Limits

Ingredient Name	Exposure Limits
Ethylene Glycol	Canada, Alberta OHSC Code 100mg/m ³ ACGIH TLV TLV: 100mg/m ³
Disodium tetraborate, pentahydrate	Canada, Alberta OHSC Code TWA: 1mg/m ³ Ceiling: 3mg/m ³ ACGIH TWA: 2mg/m ³

Personal protective equipment

Eye/face protection	Chemical safety glasses with side shields or goggles to prevent eye contact. As a general rule do not wear contact lenses when handling chemicals.
Skin protection	Wear chemical resistant gloves, impermeable protective clothing and safety shoes. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary.
General hygiene Considerations	Handle in accordance with good industrial hygiene and safety. Eye wash fountains and safety showers must be easily accessible.
Specific engineering controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

Section 9 – Physical and Chemical Properties

Physical State	Liquid	Water Solubility	miscible
Appearance & Odour	Clear, colourless to pale yellow. Characteristic odour.	Boiling Point	196°C
Vapour Pressure	<1 mmHg (20.0°C)	Boiling Point Range	196°C
Vapour Density	>1 (Air = 1)	Melting Point	<-40°C
Specific Gravity	1.19 – 1.23	Freezing Point	<-40°C
Partition coefficient (n-octonal/water)	Not available.	Lower Explosive Limit (LEL)	Not Available
pH	8.0 – 9.5	Upper Explosive Limit (UEL)	Not Available
Flashpoint (Method)	Not flammable	Auto Ignition temperature	Not Available
Odour Threshold	Not available.	Evaporation Rate	<1
Flammability (Solid, Gas)	Not available.	Viscosity	~20cP
Decomposition Temperature	Not available.		

Section 10 – Stability and Reactivity

Reactivity	Thermal decomposition generates: Corrosive vapours.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No data available.
Conditions to avoid	No data available.
Materials to avoid	Strong acids. Strong bases.
Hazardous decomposition products	Carbon oxides.

Section 11- Toxicological Information

Information on Likely Routes of Exposure

Inhalation	May be harmful if inhaled.
Skin	May be harmful if absorbed through skin.
Eye	May cause eye irritation.
Ingestion	May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, lumbar pain, oliguria, uremia, and central nervous system effects, including irregular eye movements, convulsions and coma. Cardiac failure, pulmonary edema, and severe kidney damage may develop. May be fatal if swallowed, lethal dose in adult humans for ethylene glycol is approximately 100 mL

Acute and Chronic Toxicity

Poison. Toxic if swallowed. If swallowed there is a risk of blindness.

Acute toxicity



Safety Data Sheet - GHS

R-4451

Date of Revision: March 15, 2022

Product/Ingredient Name	Result	Species	Dose	Exposure
Ethylene Glycol	LD50 Oral	Rat	4700mg/kg	-
	LD50 Dermal	Rabbit	10626mg/kg	-
Disodium tetraborate, pentahydrate	LD50 Oral	Rat	>2000mg/kg	-
	LD50 Dermal	Rabbit	>2000mg/kg	-

Skin corrosion/irritation Not classified.

Serious eye damage/ Eye irritation
Not classified.

Respiratory or skin sensitization
Not classified.

Mutagenicity Not classified.

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity Not classified.

Teratogenicity Not classified.

Specific target organ toxicity - single exposure (Globally Harmonized System)
No data available.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
No data available.

Aspiration hazard No data available.

Delayed and Immediate Effects and also Chronic Effects from Short and Long Term Exposure

Short Term Exposure

Potential immediate Health Effects No data available.

Potential Delayed Health Effects No data available.

Long Term Exposure

Potential immediate Health Effects No data available.

Potential Delayed Health Effects No data available.

Potential Chronic Effects No data available.

Synergistic effects No data available

Section 12 – Ecological Information

Toxicity

Product / Ingredient Name	Result	Species	Exposure
Ethylene Glycol	LC50 18500mg/L	Fish – Oncorhynchus mykiss	96 Hr
	LC50 >1000mg/L	Fish – Leuciscus idus	48 Hr
	EC50 74000mg/L	Daphnia – Daphnia magna	24 Hr
Disodium tetraborate, pentahydrate	LC50 100 – 1000mg/L	Fish – Pisces	96 Hr
	EC50 340mg/L	Daphnia – Daphnia magna	24 Hr

Persistence and degradability No data available.

Bioaccumulative potential Does not bioaccumulate.

Mobility in soil No data available.

PBT and vPvB assessment No data available

Section 13 – Disposal Considerations**Product**

Do not discharge substance/product into sewer system. Dispose of in accordance with national, regional, and local regulations.

Contaminated packaging

Dispose of as unused product in a licensed facility. Recommend crushing, puncturing, or other means to prevent unauthorized use of used containers. Do not cut, weld, or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled materials and runoff and contain with soil, waterways, drains, and sewers.

Section 14 - Transportation Information

CANADA Transportation of Dangerous Goods (TDG)

Not Dangerous Goods

Section 15 – Regulatory Information**DSL (Canadian Domestic Substances List)
and CEPA (Canadian Environmental Protection Act)**

All components of this product are in compliance with the chemical notification requirements of the NSN Regulations under CEPA, 1999.

TSCA Inventory

All components are listed or exempted.

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

Section 16 – Other Information**REVISION SUMMARY:**

Date of Preparation	June 1, 2018
Date of Revision	March 15, 2022

SDS Prepared by: CFR Lab Manager

CFR Chemicals Inc. provides the information contained herein in good faith, but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. CFR Chemicals Inc. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, CFR CHEMICALS INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OR RELIANCE UPON THIS INFORMATION.