



## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

### ICP Construction Inc.

Version No: 1.1

Safety Data Sheet according to OSHA HazCom Standard (2024) requirements

Issue Date: **04/08/2025**

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S.GHS.USA.EN

#### SECTION 1 Identification

##### Product Identifier

Product name	Formica F-200ZF, Formica F-200GZF, Formica F-200RZF
Synonyms	S5901X3
Proper shipping name	Chemical under pressure, n.o.s. (contains carbon dioxide, nitrogen and 1'-chloro-3,3,3-trifluoropropene)
Other means of identification	Not Available

##### Recommended use of the chemical and restrictions on use

Relevant identified uses	Contact Adhesive
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##### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	ICP Construction Inc.
Address	150 Dascomb Road Andover, MA 01810 United States
Telephone	1-866-667-5119 1-978-623-9987
Fax	Not Available
Website	<a href="http://www.icpgroup.com">www.icpgroup.com</a>
Email	sds@icpgroup.com

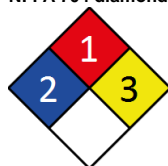
##### Emergency phone number

Association / Organisation	ChemTel
Emergency telephone number(s)	1-800-255-3924
Other emergency telephone number(s)	1-813-248-0585

#### SECTION 2 Hazard(s) identification

##### Classification of the substance or mixture

###### NFPA 704 diamond



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Classification	Chemical Under Pressure Category 3, Aspiration Hazard Category 1, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2A, Acute Toxicity (Inhalation) Category 4, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 3, Simple Asphyxiant
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##### Label elements

Hazard pictogram(s)	
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Signal word	<b>Danger</b>
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##### Hazard statement(s)

Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

H284	Chemical under pressure: May explode if heated
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H412	Harmful to aquatic life with long lasting effects.
	May displace oxygen and cause rapid suffocation

Hazard(s) not otherwise classified  
Not Applicable

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P271	Use in a well-ventilated area.
P261	Avoid breathing gas.
P273	Avoid release to the environment.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P264	Wash all exposed external body areas thoroughly after handling.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P331	Do NOT induce vomiting.
P376	Stop leak if safe to do so.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Precautionary statement(s) Storage

P405	Store locked up.
P410+P403	Protect from sunlight. Store in a well-ventilated place.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
156-60-5	30-60	<u>trans-acetylene dichloride</u>
406-78-0	1-5	<u>1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether</u>
124-38-9	1-5	<u>carbon dioxide</u>
7727-37-9.	1-5	<u>nitrogen</u>
102687-65-0	10-30	<u>1'-chloro-3,3,3-trifluoropropene</u>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 First-aid measures

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"><li>▶ Wash out immediately with fresh running water.</li><li>▶ 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.</li><li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li><li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li></ul>
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"><li>▶ Quickly but gently, wipe material off skin with a dry, clean cloth.</li><li>▶ Immediately remove all contaminated clothing, including footwear.</li></ul>

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## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

	<ul style="list-style-type: none"> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
Inhalation	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor, without delay.</li> </ul>
Ingestion	<p>▶ <b>IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.</b></p> <ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.</li> <li>▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.</li> <li>▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.</li> </ul> <p><b>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</b></p> <ul style="list-style-type: none"> <li>▶ <b>INDUCE</b> vomiting with fingers down the back of the throat, <b>ONLY IF CONSCIOUS</b>. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> </ul> <p><b>NOTE:</b> Wear a protective glove when inducing vomiting by mechanical means.</p> <ul style="list-style-type: none"> <li>▶ Avoid giving milk or oils.</li> <li>▶ Avoid giving alcohol.</li> </ul>

## Most important symptoms and effects, both acute and delayed

See Section 11

## Indication of any immediate medical attention and special treatment needed

for intoxication due to Freons/ Halons;

## A: Emergency and Supportive Measures

- ▶ Maintain an open airway and assist ventilation if necessary
- ▶ Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microg/kg/min IV.
- ▶ Monitor the ECG for 4-6 hours

## B: Specific drugs and antidotes:

- ▶ There is no specific antidote

## C: Decontamination

- ▶ Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- ▶ Ingestion; (a) Prehospital: Administer activated charcoal, if available. **DO NOT** induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

## D: Enhanced elimination:

- ▶ There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

## POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition

- ▶ Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- ▶ No specific antidote.
- ▶ Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- ▶ If lavage is performed, suggest endotracheal and/or esophageal control.
- ▶ Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- ▶ Treatment based on judgment of the physician in response to reactions of the patient
- ▶ Acute exposures to carbon tetrachloride present, initially, with CNS depression followed by hepatic and renal dysfunction.
- ▶ Respiratory depression and cardiac dysrhythmias are an immediate threat to life.
- ▶ Since a major fraction of absorbed carbon tetrachloride is exhaled in the first hour, good tidal volumes should be maintained in severely poisoned patients; hyperventilation may be an additional therapeutic modality.
- ▶ Ipecac syrup, lavage, activated charcoal or catharsis may all be used in the first 4 hours.
- ▶ Since reactive metabolites may cause hepatorenal toxicity, administration of N-acetyl-L-cysteine may reduce complications. Experience with this therapy is limited. [Ellenhorn and Barceloux: Medical Toxicology]

For gas exposures:

## BASIC TREATMENT

- ▶ Establish a patent airway with suction where necessary.
- ▶ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- ▶ Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- ▶ Monitor and treat, where necessary, for pulmonary oedema.
- ▶ Monitor and treat, where necessary, for shock.
- ▶ Anticipate seizures.

## ADVANCED TREATMENT

- ▶ Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- ▶ Positive-pressure ventilation using a bag-valve mask might be of use.
- ▶ Monitor and treat, where necessary, for arrhythmias.
- ▶ Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- ▶ Drug therapy should be considered for pulmonary oedema.
- ▶ Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- ▶ Treat seizures with diazepam.
- ▶ Proparacaine hydrochloride should be used to assist eye irrigation.

BRONSTEIN, A.C. and CURRANCE, P.L.

EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

## SECTION 5 Fire-fighting measures

## Extinguishing media

- ▶ Water spray or fog.
- ▶ Foam.

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## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

- ▶ Dry chemical powder.

## Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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## Special protective equipment and precautions for fire-fighters

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> </ul>
<b>Fire/Explosion Hazard</b>	carbon dioxide (CO <sub>2</sub> ) hydrogen chloride phosgene other pyrolysis products typical of burning organic material. <b>BEWARE:</b> Empty solvent, paint, lacquer and flammable liquid drums present a severe explosion hazard if cut by flame torch or welded. Even when thoroughly cleaned or reconditioned the drum seams may retain sufficient solvent to generate an explosive atmosphere in the drum.

## SECTION 6 Accidental release measures

## Personal precautions, protective equipment and emergency procedures

See section 8

## Environmental precautions

See section 12

## Methods and material for containment and cleaning up

<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> </ul>
<b>Major Spills</b>	<ul style="list-style-type: none"> <li>▶ Clear area of personnel and move upwind.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves.</li> </ul>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

## Precautions for safe handling

<b>Safe handling</b>	
<b>Other information</b>	<ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry area protected from environmental extremes.               <ul style="list-style-type: none"> <li>· Do NOT store halogenated aliphatics in areas containing alkali or alkaline earth metals such as powdered aluminum, zinc, or beryllium</li> </ul> </li> </ul>

## Conditions for safe storage, including any incompatibilities

<b>Suitable container</b>	<ul style="list-style-type: none"> <li>▶ <b>DO NOT use aluminium or galvanised containers</b></li> <li>▶ Packing as supplied by manufacturer.</li> <li>▶ Plastic containers may only be used if approved for flammable liquid.</li> <li>▶ Check that containers are clearly labelled and free from leaks.</li> <li>▶ is incompatible with water, acrolein, acrylaldehyde, amines, anhydrous ammonia, aziridine, metal acetylides (such as lithium acetylide), caesium monoxide (moist), lithium, potassium, sodium, sodium carbide, sodium-potassium alloy, sodium peroxide, titanium</li> <li>▶ may build up static electricity when discharged at high flow rates from storage cylinders or fire extinguishers - this may produce sparks resulting in ignition of flammables or explosives.</li> <li>▶ For materials with a viscosity of at least 2680 cSt.</li> </ul>
<b>Storage incompatibility</b>	<p>Carbon dioxide:</p> <ul style="list-style-type: none"> <li>▶ reacts violently with strong bases and alkali metals (especially their dusts)</li> <li>▶ may ignite or explode when heated or in suspended chemically active metals (and their hydrides) such as aluminium, chromium, manganese, magnesium (above 775 C), titanium (above 550 C), uranium (above 750 C) or zirconium, diethylmagnesium</li> <li>▶ is incompatible with water, acrolein, acrylaldehyde, amines, anhydrous ammonia, aziridine, metal acetylides (such as lithium acetylide), caesium monoxide (moist), lithium, potassium, sodium, sodium carbide, sodium-potassium alloy, sodium peroxide, titanium</li> <li>▶ may build up static electricity when discharged at high flow rates from storage cylinders or fire extinguishers - this may produce sparks resulting in ignition of flammables or explosives.</li> <li>▶ may decompose to toxic carbon monoxide and flammable oxygen when exposed to electrical discharges or very high temperatures</li> </ul> <p>Dichloroethylene:</p> <ul style="list-style-type: none"> <li>▶ requires inhibition (typically with monomethyl ether or hydroquinone) to prevent polymerisation</li> <li>▶ readily forms explosive peroxides with air or contaminants (a white deposit) may indicate the presence of explodable peroxides</li> <li>▶ polymerises violently on heating or on contact with oxidisers, chlorosulfonic acid, nitric acid, or oleum; or under the influence of oxygen, sunlight, copper or aluminium</li> <li>▶ reacts violently with alkaline metals (lithium, sodium, potassium, rubidium, caesium, and francium) and nitrogen tetroxide</li> <li>▶ is incompatible with ozone, strong bases, difluoromethylene</li> <li>▶ may react explosively with trifluoroethylene above 180 C. perchloryl fluoride above 100 C</li> <li>▶ may be corrosive or unstable in the presence of steel</li> <li>▶ attacks iron, aluminium, plastics and coatings</li> </ul> <p>1,2-Dichloroethylene in contact with solid caustic alkalis or their concentrated solutions will form chloroacetylene which ignites in air.</p> <p>Distillation of ethanol containing 0.25% of the halocarbon with aqueous sodium hydroxide gave a product which ignited in air.</p> <ul style="list-style-type: none"> <li>▶ Haloacetylenes should be used with exceptional precautions.</li> <li>▶ Explosions may occur during distillation when bath temperatures are too high or if air is admitted to a hot vacuum-distillation as evidenced by experience with bromoacetylenes.</li> </ul> <p>BREThERICK L.: Handbook of Reactive Chemical Hazards</p> <p>Acetylene dichloride:</p> <ul style="list-style-type: none"> <li>▶ in contact with solid caustic alkalis or their concentrated solutions, sulfuric acid, or copper and its alloys, will form chloroacetylene which ignites in air</li> <li>▶ may ignite in contact with with strong oxidising agents, ozone or nitrogen tetroxide (explosively)</li> <li>▶ forms unstable peroxides in air</li> </ul>

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## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

- ▶ may polymerise unless inhibited - polymerisation may be caused by peroxides, strong sunlight, elevated temperatures, contact with oxidisers
  - ▶ is incompatible with strong bases, amines, alkali metals, aluminium and its alloys, strong reducing agents such as sodium, magnesium, zinc, , difluoromethylene and dihydrofluoride
  - ▶ attacks iron, aluminium, plastics and coatings.
- Distillation of ethanol containing 0.25% of the halocarbon, with aqueous sodium hydroxide, gave a product which ignited in air.
- ▶ Haloalkenes are highly reactive.
  - ▶ Some of the more lightly substituted lower members are highly flammable; many members of the group are peroxidisable and polymerisable.
  - ▶ Avoid reaction or contact with potassium or its alloys - although apparently stable on contact with a wide range of halocarbons, reaction products may be shock-sensitive and may explode with great violence on light impact.
  - ▶ Segregate from alcohol, water.

## SECTION 8 Exposure controls / personal protection

## Control parameters

## Occupational Exposure Limits (OEL)

## INGREDIENT DATA


Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US OSHA Permissible Exposure Limits (PELs) Table Z-1	carbon dioxide	Carbon dioxide	5000 ppm / 9000 mg/m3	Not Available	Not Available	Not Available
US NIOSH Recommended Exposure Limits (RELs)	carbon dioxide	Carbon dioxide	5000 ppm / 9000 mg/m3	54000 mg/m3 / 30000 ppm	Not Available	Not Available

## Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
trans-acetylene dichloride	Not Available	Not Available	Not Available
nitrogen	7.96E+05 ppm	8.32E+05 ppm	8.69E+05 ppm

Ingredient	Original IDLH	Revised IDLH
trans-acetylene dichloride	Not Available	Not Available
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	Not Available	Not Available
carbon dioxide	40,000 ppm	Not Available
nitrogen	Not Available	Not Available
1'-chloro-3,3,3-trifluoropropene	Not Available	Not Available

## Exposure controls

<b>Appropriate engineering controls</b>	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.</li> </ul>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<ul style="list-style-type: none"> <li>▶ Butyl rubber gloves <ul style="list-style-type: none"> <li>- Butyl rubber gloves should be used when handling halogenated aliphatics .</li> <li>- Nitrile, PVC-coated nitrile, and PVC protective equipment are not recommended</li> </ul> </li> </ul>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<ul style="list-style-type: none"> <li>- Halogen-selective detectors use a specialized sensor that allows the monitor to detect compounds containing fluorine, chlorine, bromine, and iodine with-out interference from other species. These detectors are typically easy to use, feature higher sensitivity than the nonselective detectors (detection limits are typically &lt;5 ppm when used as an area monitor and &lt;1.4 gm/yr [&lt;0.05 oz/yr] when used as a leak pinpointer).</li> <li>- Compound-Specific Detectors are typically capable of detecting the presence of a single compound without interference from other compounds.</li> <li>▶ Overalls.</li> <li>▶ PVC Apron.</li> <li>▶ PVC protective suit may be required if exposure severe.</li> <li>▶ Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.</li> <li>▶ For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets).</li> <li>▶ Non sparking safety or conductive footwear should be considered.</li> </ul>

## Respiratory protection

Type AX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- ▶ Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

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## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

## SECTION 9 Physical and chemical properties

## Information on basic physical and chemical properties

Appearance	Not Available		
Physical state	Compressed Gas	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	>93	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	318
Heat of Combustion (kJ/g)	Not Available	Ignition Distance (cm)	Not Available
Flame Height (cm)	Not Available	Flame Duration (s)	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	Enclosed Space Ignition Deflagration Density (g/m3)	Not Available
Nanoform Solubility	Not Available	Nanoform Particle Characteristics	Not Available
Particle Size	Not Available		

## SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

## SECTION 11 Toxicological information

## Information on toxicological effects

a) Acute Toxicity	There is sufficient evidence to classify this material as acutely toxic.
b) Skin Irritation/Corrosion	There is sufficient evidence to classify this material as skin corrosive or irritating.
c) Serious Eye Damage/Irritation	There is sufficient evidence to classify this material as eye damaging or irritating
d) Respiratory or Skin sensitisation	Based on available data, the classification criteria are not met.
e) Mutagenicity	Based on available data, the classification criteria are not met.
f) Carcinogenicity	Based on available data, the classification criteria are not met.
g) Reproductivity	Based on available data, the classification criteria are not met.
h) STOT - Single Exposure	There is sufficient evidence to classify this material as toxic to specific organs through single exposure
i) STOT - Repeated Exposure	Based on available data, the classification criteria are not met.
j) Aspiration Hazard	There is sufficient evidence to classify this material as an aspiration hazard

Inhaled	<p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. There is strong evidence to suggest that this material can cause, if inhaled once, serious, irreversible damage of organs. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.</p> <p>Acetylene chloride can cause unconsciousness and irritation of the central nervous system. Repeated doses can damage the liver. Exposure to the vapour may produce central nervous system depression; in milder doses, nausea, vomiting, weakness, tremor and cramps in the upper abdomen occur.</p> <p>Exposure to fluorocarbons can produce non-specific flu-like symptoms such as chills, fever, weakness, muscle pain, headache, chest discomfort, sore throat and dry cough with rapid recovery. High concentrations can cause irregular heartbeats and a stepwise reduction in lung capacity.</p>
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## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

	<p>Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved. Depression of the central nervous system is the most outstanding effect of most halogenated aliphatic hydrocarbons. Inebriation and excitation, passing into narcosis, is a typical reaction. In severe acute exposures there is always a danger of death from respiratory failure or cardiac arrest due to a tendency to make the heart more susceptible to catecholamines (adrenalin)</p>										
Ingestion	<p>Strong evidence exists that exposure to the material may cause irreversible damage (other than cancer, mutations and birth defects) following a single exposure by swallowing.</p> <p>Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733)</p> <p>The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum.</p> <p>Not normally a hazard due to physical form of product.</p> <p>Considered an unlikely route of entry in commercial/industrial environments</p> <p>Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.</p>										
Skin Contact	<p>There is strong evidence to suggest that this material, on a single contact with skin, can cause serious, irreversible damage of organs.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>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.</p> <p>Fluorocarbons remove natural oils from the skin, causing irritation, dryness and sensitivity.</p> <p>There is some evidence to suggest that the material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.</p>										
Eye	<p>Exposure to isomer acetylene dichloride at 2200 ppm caused burning of the eyes, dizziness and nausea. Reversible corneal clouding also has been described.</p> <p>The vapour when concentrated has pronounced eye irritation effects and this gives some warning of high vapour concentrations. If eye irritation occurs seek to reduce exposure with available control measures, or evacuate area.</p> <p>There is some evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.</p>										
Chronic	<p>Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>The reactivity of an epoxide intermediate may be the reason for the cancer-causing properties of halogenated oxiranes. It is reported that 1,1-dichloroethyne, vinyl chloride, trichloroethylene, tetrachloroethylene and chloroprene all cause cancer.</p> <p>Generally speaking, substances with one halogen substitution show higher potential to cause cancer compared to substances with two. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.</p> <p>Fluorocarbons can cause an increased risk of cancer, spontaneous abortion and birth defects.</p>										
Formica F-200ZF, Formica F-200GZF, Formica F-200RZF	<table> <tr> <th>TOXICITY</th><th>IRRITATION</th></tr> <tr> <td>Not Available</td><td>Not Available</td></tr> </table>	TOXICITY	IRRITATION	Not Available	Not Available						
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<b>Legend:</b>	<p>1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances</p>										
Formica F-200ZF, Formica F-200GZF, Formica F-200RZF	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant.</p> <p>Disinfection byproducts (DBPs) are formed when disinfectants such as chlorine, chloramines and ozone react with organic and inorganic matter in water. Animal studies have shown that some DBPs cause cancer. To date, several hundred DBPs have been identified.</p> <p>Numerous haloalkanes and haloalkenes have been tested for cancer-causing and mutation-causing activities.</p>										

## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

TRANS-ACETYLENE DICHLORIDE	Hamster lung cell mutagen in vitro The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.		
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	For hydrofluoroethers (HFEs): Due to their physiochemical properties in similarity to those of HFCs, it is expected that HFEs should have no significant health risk because of the low potential for human toxicity of HFCs from the results of mammalian (i.e. rat) tests. With respect to the toxicological profiles for commercial HFEs, there is little or no available data in the literature. According to the limited references and safety data sheet from the manufacturers, there are no significant evidences to support the assumption of carcinogenicity, mutagenicity, reproductive/developmental and other chronic effects for HFEs. Commercial HFEs briefly exhibit relatively low toxicity from the results of acute toxicity tests. Halogenated ether anaesthetics have caused immune-mediated inflammation of the liver, and rarely, a malignant, extreme fever. In contact with certain absorbents such as dry soda-lime, they may break down to form carbon monoxide, which is toxic in very low concentrations. Fluroxene, but not the other members of this group, has been shown to cause mutations.		
1'-CHLORO-3,3,3-TRIFLUOROPROPENE	Overall results from a series of genetic studies indicate that substance is nonmutagenic and non-teratogenic Sensitisation : Result: Does not cause skin sensitisation. Classification: Patch test on human volunteers did not demonstrate sensitisation properties. Cardiac sensitization Species: dogs Note: Cardiac sensitisation threshold (dog): 25000 ppm. Repeated dose toxicity : Species: rat Application Route: Inhalation Exposure time: 4 Weeks NOEL: 4500 ppm Subacute toxicity Genotoxicity in vitro : Test Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) Genotoxicity in vivo : Species: rat Genotoxicity in vivo : Test Method: Unscheduled DNA synthesis Genotoxicity in vivo : Species: mouse Reproductive toxicity : Species: rabbit Note: No-observed-effect level - 10,000 ppm Teratogenicity : Species: rabbit No-observed-effect level - 10,000 ppm Further information : Note: Excessive exposure may cause central nervous system effects including drowsiness and dizziness. Excessive exposure may also cause cardiac arrhythmia		
Formica F-200ZF, Formica F-200GZF, Formica F-200RZF & TRANS-ACETYLENE DICHLORIDE	Studies have shown that trans-1,2-dichloroethylene shows low levels of acute toxicity. Animal testing did not show evidence of genetic damage or reproductive or developmental toxicity.		
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether & NITROGEN	No significant acute toxicological data identified in literature search.		
1'-CHLORO-3,3,3-TRIFLUOROPROPENE	Result: negative Cell type: Bone marrow Method: Mutagenicity (micronucleus test) Species: rat No-observed-effect level - 15,000 ppm		
Acute Toxicity	✓	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✓

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

Formica F-200ZF, Formica F-200GZF, Formica F-200RZF	<table><tr><th>Endpoint</th><th>Test Duration (hr)</th><th>Species</th><th>Value</th><th>Source</th></tr><tr><td>Not Available</td><td>Not Available</td><td>Not Available</td><td>Not Available</td><td>Not Available</td></tr></table>					Endpoint	Test Duration (hr)	Species	Value	Source	Not Available	Not Available	Not Available	Not Available	Not Available															
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	EC50(ECx)	48h	Crustacea	82mg/l	2																									

Continued...



Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

	LC50	96h	Fish	~38mg/l	2
<b>Legend:</b>	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

Environmental Fate: Study shows that trans-1,2-dichloroethylene is moderately biodegradable in the environment. Level III fugacity modeling shows that the compound prefers to partition in water, followed by air, and then soil with low potential to partition in sediments.

Ecotoxicity: Chronic toxicity test conducted on fathead minnow and freshwater alga show that trans-1,2-dichloroethylene has no adverse effects

Fish LC50 (96h): bluegill sunfish (*Lepomis macrochirus*) 135 mg/l (trans-1,2-isomer); 73.9mg/l (trans-1,1-isomer)

Chronic toxicity Fish (for 1,1-dichloroethylene): fathead minnow 2800 mg/l; freshwater alga 798 mg/l

LC50 and EC50 saltwater species: mysid shrimp, sheepshead minnow, tidewater silversides, and alga 224,000-712,000 mg/l (for 1,1-dichloroethylene)

Substances containing unsaturated carbons are ubiquitous in indoor environments. They result from many sources (see below). Most are reactive with environmental ozone and many produce stable products which are thought to adversely affect human health. The potential for surfaces in an enclosed space to facilitate reactions should be considered.

For Haloalkanes:

Atmospheric Fate: Fully, or partially, fluorinated haloalkanes released to the air can restrict heat loss from the Earth's atmosphere by absorbing infrared emissions from the surface. The major fate of haloalkanes in the atmosphere is via breakdown by hydroxyl radicals. These substances react with atmospheric ozone and nitrates, which also causes them to change, (transform).

For Acetylene Dichlorides (1,2-dichloroethylene)- Vapor Pressure: 200 mm Hg at 25 C. Koc ~ 250. Log Kow: 1.86. Henry's Law Constant of 4.1X10-3 atm.m3/mole.

**DO NOT discharge into sewer or waterways.**

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
trans-acetylene dichloride	HIGH	HIGH
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	HIGH	HIGH
carbon dioxide	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
trans-acetylene dichloride	LOW (LogKOW = 2.09)
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	LOW (LogKOW = 2.2978)
carbon dioxide	LOW (LogKOW = 0.83)
nitrogen	LOW (LogKOW = 0.67)
1'-chloro-3,3,3-trifluoropropene	LOW (LogKOW = 2.45)

Mobility in soil

Ingredient	Mobility
trans-acetylene dichloride	LOW (Log KOC = 43.79)
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	LOW (Log KOC = 125.3)
carbon dioxide	HIGH (Log KOC = 1.498)

Other adverse effects

One or more ingredients within this SDS has the potential of causing ozone depletion and/or photochemical ozone creation.

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"><li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></li><li>▶ It may be necessary to collect all wash water for treatment before disposal.</li><li>▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li><li>▶ Recycle wherever possible.</li><li>▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li><li>▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).</li></ul>
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SECTION 14 Transport information

Labels Required

	
Marine Pollutant	NO

Shipping container, transport vehicle placarding, and labeling may vary from the below information. This depends on the quantity shipped, the applicability of excepted quantity requirements, limited quantity requirements, and/or special provisions according to US DOT, IATA and IMDG regulations. In case of reshipment, it is the responsibility of the shipper to determine the appropriate labels and markings in accordance with applicable transport regulations.

Land transport (DOT)

14.1. UN number or ID number	3500
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Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

14.2. UN proper shipping name	Chemical under pressure, n.o.s. (contains carbon dioxide, nitrogen and 1'-chloro-3,3,3-trifluoropropene)	
14.3. Transport hazard class(es)	Class	2.2
	Subsidiary Hazard	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Hazard Label	2.2
	Special provisions	362, T50, TP40

Air transport (ICAO-IATA / DGR)

14.1. UN number	3500	
14.2. UN proper shipping name	Chemical under pressure, n.o.s. * (contains carbon dioxide, nitrogen and 1'-chloro-3,3,3-trifluoropropene)	
14.3. Transport hazard class(es)	ICAO/IATA Class	2.2
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	2L
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	Special provisions	A187
	Cargo Only Packing Instructions	218
	Cargo Only Maximum Qty / Pack	150 kg
	Passenger and Cargo Packing Instructions	218
	Passenger and Cargo Maximum Qty / Pack	75 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden
	Passenger and Cargo Limited Maximum Qty / Pack	Forbidden

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	3500	
14.2. UN proper shipping name	CHEMICAL UNDER PRESSURE, N.O.S. (contains carbon dioxide, nitrogen and 1'-chloro-3,3,3-trifluoropropene)	
14.3. Transport hazard class(es)	IMDG Class	2.2
	IMDG Subsidiary Hazard	Not Applicable
14.4. Packing group	Not Applicable	
14.5. Environmental hazard	Not Applicable	
14.6. Special precautions for user	EMS Number	F-C , S-V
	Special provisions	274 362
	Limited Quantities	0

14.7. Maritime transport in bulk according to IMO instruments

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
trans-acetylene dichloride	Not Available
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	Not Available
carbon dioxide	Not Available
nitrogen	Not Available
1'-chloro-3,3,3-trifluoropropene	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
trans-acetylene dichloride	Not Available
1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether	Not Available
carbon dioxide	Not Available
nitrogen	Not Available
1'-chloro-3,3,3-trifluoropropene	Not Available

## Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

## SECTION 15 Regulatory information

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

## trans-acetylene dichloride is found on the following regulatory lists

US - Massachusetts - Right To Know Listed Chemicals  
 US - Pennsylvania - Hazardous Substance List  
 US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)  
 US CWA (Clean Water Act) - Priority Pollutants  
 US CWA (Clean Water Act) - Toxic Pollutants  
 US DOE Temporary Emergency Exposure Limits (TEELs)  
 US EPA Integrated Risk Information System (IRIS)  
 US New York City Community Right-to-Know: List of Hazardous Substances  
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory  
 US TSCA Section 12(b) - List of Chemical Substances Subject to Export Notification Requirements

## 1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether is found on the following regulatory lists

US - Pennsylvania - Hazardous Substance List  
 US CWA (Clean Water Act) - Toxic Pollutants  
 US New York City Community Right-to-Know: List of Hazardous Substances  
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory  
 US TSCA Section 12(b) - List of Chemical Substances Subject to Export Notification Requirements  
 US TSCA Section 5(a)(2) - Significant New Use Rules (SNURs)

## carbon dioxide is found on the following regulatory lists

FEI Equine Prohibited Substances List - Controlled Medication  
 FEI Equine Prohibited Substances List (EPSL)  
 US - Massachusetts - Right To Know Listed Chemicals  
 US - New Jersey Right to Know Hazardous Substances  
 US - Pennsylvania - Hazardous Substance List  
 US New York City Community Right-to-Know: List of Hazardous Substances  
 US NIOSH Recommended Exposure Limits (RELs)  
 US OSHA Permissible Exposure Limits (PELs) Table Z-1  
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

## nitrogen is found on the following regulatory lists

US - Massachusetts - Right To Know Listed Chemicals  
 US - New Jersey Right to Know Hazardous Substances  
 US - Pennsylvania - Hazardous Substance List  
 US DOE Temporary Emergency Exposure Limits (TEELs)  
 US New York City Community Right-to-Know: List of Hazardous Substances  
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

## 1'-chloro-3,3,3-trifluoropropene is found on the following regulatory lists

US AIHA Workplace Environmental Exposure Levels (WEELs)  
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory  
 US Toxicology Excellence for Risk Assessment (TERA) Workplace Environmental Exposure Levels (WEEL)

## Additional Regulatory Information

Not Applicable

## Federal Regulations

## Superfund Amendments and Reauthorization Act of 1986 (SARA)

## Section 311/312 hazard categories

Flammable (Gases, Aerosols, Liquids, or Solids)	No
Gas under pressure	Yes
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	Yes
Reproductive toxicity	No
Skin Corrosion or Irritation	Yes
Respiratory or Skin Sensitization	No
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	Yes
Aspiration Hazard	Yes

Continued...

Formica F-200ZF, Formica F-200GZF, Formica F-200RZF

Germ cell mutagenicity	No
Simple Asphyxiant	Yes
Hazards Not Otherwise Classified	No

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)  
None Reported

US. EPCRA Section 313 Toxic Release Inventory (TRI) (40 CFR 372)  
None Reported

Additional Federal Regulatory Information  
Not Applicable

State Regulations

US. California Proposition 65  
None Reported

Additional State Regulatory Information  
Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIIC / Australia Non-Industrial Use	No (1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether)
Canada - DSL	Yes
Canada - NDSL	No
China - IECSC	No (1'-chloro-3,3,3-trifluoropropene)
Europe - EINEC / ELINCS / NLP	No (1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether; 1'-chloro-3,3,3-trifluoropropene)
Japan - ENCS	No (nitrogen)
Korea - KECI	Yes
New Zealand - NZIoC	No (1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether)
Philippines - PICCS	No (1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether)
USA - TSCA	All chemical substances in this product have been designated as TSCA Inventory 'Active'
Taiwan - TCSI	Yes
Mexico - INSQ	No (1'-chloro-3,3,3-trifluoropropene)
Vietnam - NCI	Yes
Russia - FBEPH	No (1,1,2,2-tetrafluoroethyl-2,2,2-trifluoroethyl ether; 1'-chloro-3,3,3-trifluoropropene)
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

SECTION 16 Other information

Revision Date	04/08/2025
Initial Date	04/13/2023

CONTACT POINT

Other information

The 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.

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