

| | |
|---|---|
|  | <p>Tel: 514-956-7503 Fax: 514-956-7504 Internet: www.megs.ca Email : support@megs.ca</p> |
|---|---|

| | | | |
|-----------------|------------|--------------------|--------------------|
| Montreal | St-Laurent | Tel : 514-956-7503 | Fax : 514-956-7504 |
| Ottawa | Nepean | Tel : 613-226-4228 | Fax : 613-226-4229 |
| Quebec | Quebec | Tel : 418-834-7447 | Fax : 418-834-3774 |

MSDS: Halocarbon 115

PRODUCT INFORMATION

PRODUCT: Halocarbon 115
TRADE NAME: Halocarbon 115 or Freon ® 115
CHEMICAL NAME: Chloropentafluoroethane
SYNONYMS: Monochloropentafluoroethane, CFC-115 or R115
FORMULA: C₂ClF₅
CHEMICAL FAMILY: Halogenated Alkane
SUPPLIER'S NAME: MEGS Inc.
SUPPLIER'S ADDRESS: 2675 De Miniac
 Ville St-Laurent, Qc, H4S 1E5
EMERGENCY PHONE NUMBER: (514) 956-7503
MOLECULAR WEIGHT: 154.47 g/mole
PRODUCT USE: Various
PRODUCT IDENTIFICATION NUMBER: UN 1020

| INGREDIENTS | % (VOL) | CAS NUMBER | LD ₅₀ (Species & Routes) | LC ₅₀ (Rat, 4 hrs.) | TLV-TWA (ACGIH) |
|-------------------------|---------|------------|-------------------------------------|--------------------------------|-----------------|
| Chloropentafluoroethane | 100 | 76-15-3 | Not applicable | Not available | 1000 ppm |

COMPOSITION AND INFORMATION ON INGREDIENTS

PHYSICAL DATA

| | |
|--|----------------------------------|
| PHYSICAL STATE: | Gas (Compressed gas) |
| APPEARANCE: | Colorless |
| ODOR: | Mild ethereal |
| ODOR THRESHOLD: | Not available |
| SPECIFIC GRAVITY LIQUID (H₂O = 1): | 1.304 @ 21.1°C |
| VAPOR PRESSURE: | 804.3 kPa (@ 20°C) |
| SPECIFIC GRAVITY VAPOUR (air = 1): | 5.48 |
| VAPOUR DENSITY: | 0.006487 g/ml @ 21.1°C |
| EVAPORATION RATE: | >1 compared to (Butyl Acetate=1) |
| BOILING POINT: | -39.1°C (-38.4°F) |
| FREEZING POINT: | -106.1°C (-159°F) |
| pH: | Not applicable |
| MOLECULAR WEIGHT: | 154.47 g/mole |
| COEFFICIENT OF WATER/OIL: | Not applicable |
| SOLUBILITY IN WATER: | Negligible |
| ODOR THRESHOLD: | Not available |

HAZARDS IDENTIFICATION AND TOXICOLOGICAL PROPERTIES**Emergency Overview**

CAUTION! Liquid and gas under pressure. Harmful if inhaled. Can cause rapid suffocation. Can cause frostbite. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers.

ROUTES OF EXPOSURE

SKIN CONTACT: Liquid may cause frostbite.

Frostbite effects are a change in color of the skin to gray or white possibly followed by blistering.

SKIN ABSORPTION: Prolonged or widespread skin contact with the liquid may result in the absorption of harmful amounts of material.

EYE CONTACT: Liquid may cause severe corneal injury. Persons with potential exposure should not wear contact lenses

INHALATION: Asphyxiant. Effects are due to lack of oxygen. High concentrations may cause dizziness, nausea, vomiting, disorientation, confusion, incoordination and narcosis. These effects of very high concentrations are due to suffocation. Lack of oxygen can kill.

INGESTION: An unlikely route of exposure, but frostbite of the lips and mouth may result from contact with the liquid. This product is a gas at normal temperature and pressure.

ACUTE OVER EXPOSURE EFFECTS: Not available

CHRONIC OVER EXPOSURE EFFECTS: Not available

OTHER EFFECTS OF OVEREXPOSURE: At very high concentrations may produce cardiac arrhythmias or arrest due to sensitization of the heart to adrenalin and non-adrenalin.

THRESHOLD LIMIT VALUE: TLV-TWA Data from 2001 Guide of Occupational Exposure Values (ACGIH). TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

CARCINOGENICITY: Not listed as carcinogen by OSHA, NTP or IARC.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Repeated or prolonged exposure is not known to aggravate medical condition.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: None

FIRST AID MEASURES

SPECIFIC FIRST AID PROCEDURES: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO HALOCARBON 115. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove any contact lenses. Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes. WARM water MUST be used. Cold water may be used. Get medical attention.

SKIN CONTACT: Dermal Contact or Frostbite: Remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing. Wash clothing before reuse. Thoroughly clean shoes before reuse.

NOTES TO PHYSICIAN:

This product may be a cardiac sensitizer; avoid the use of epinephrine. There is no specific antidote, and treatment of overexposure should be directed at the control of symptoms and the clinical condition.

FIRE FIGHTING MEASURES

| | |
|--|--|
| CONDITIONS OF FLAMMABILITY: | Nonflammable gas |
| FLASHPOINT AND METHOD OF DETERMINATION: | None, not applicable |
| UPPER EXPLOSION LIMIT (% BY VOL): | Not applicable |
| LOWER EXPLOSION LIMIT (% BY VOL): | Not applicable |
| AUTO-IGNITION TEMPERATURE: | Not applicable |
| FLAMMABILITY CLASSIFICATION: | Nonflammable gas |
| HAZARDOUS COMBUSTION PRODUCTS: | Not applicable. Decomposes to toxic gases at fire temperatures |
| SENSITIVITY TO MECHANICAL SHOCK: | Avoid impact against container |
| SENSITIVITY TO STATIC DISCHARGE: | None |

UNUSUAL FIRE AND EXPLOSION HAZARD:

Gas cannot catch fire. Container may rupture due to heat of fire. No part of a container should be subjected to a temperature higher than 52 °C (approximately 125 °F). Most containers are provided with a pressure relief device designed to vent contents when they are exposed to elevated temperature. Toxic fumes may be produced when heated.

EXTINGUISHING MEDIA:

This material cannot catch fire. Use media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES:

CAUTION! Evacuate all personnel to a safe distance. Immediately deluge containers with water spray from maximum distance until cool, then move containers away from fire area if without risk. Self-contained respiratory equipment for fires involving large quantities of this material. See Unusual Fire and Explosion Hazards.

ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Caution! High-pressure gas. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs.

WASTE DISPOSAL METHOD:

Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations. If necessary, call your local supplier for assistance.

HANDLING AND STORAGE**STORAGE REQUIREMENTS:**

Protect cylinders from physical damage.

Store in cool, dry, well-ventilated area of non combustible construction away from heavily trafficked areas and emergency exits.

Do not allow the temperature where cylinders are stored to exceed 52°C.

Cylinders must be stored upright and firmly secured to prevent falling or being knocked over.

Full and empty cylinders should be segregated.

Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time.

HANDLING PROCEDURES AND EQUIPMENT: USE ONLY IN WELL-VENTILATED AREAS.

Valve protection caps must remain in place unless container is secured with valve outlet piped to use point.

Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement.

Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve.

Use a pressure reducing regulator when connecting cylinder to lower pressure piping or systems.

Do not heat cylinder by any means to increase the discharge rate of product from the cylinder.

Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

Do not tamper with (valve) safety device.

Close valve after each use and when empty.

For additional information on storage and handling, refer to Compressed Gas Association (CGA) pamphlet P-1, *Safe handling of Compressed Gases in Containers*, available from the CGA.

Refer to section 16 for the address and phone number along with a list of other available

publications.

EXPOSURE CONTROLS / PERSONAL PROTECTION

VENTILATION/ENGINEERING CONTROLS:

Hood with forced ventilation; provide local exhaust to prevent accumulation above exposure limit.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION:

Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Selection should be based on the current CSA standards Z94.4, "Selection, care and use of respirators". Respirators should be approved by NIOSH and MSHA.

SKIN PROTECTION:

Neoprene gloves.

EYE PROTECTION:

Safety goggles or safety glasses. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face protection".

OTHER PROTECTIVE EQUIPMENT:

Metatarsal shoes for cylinder handling. Protective clothing where needed. Cuffless trousers should be worn outside the shoes. Select in accordance with the current CSA standard Z195, "Protective Foot Wear".

REACTIVITY DATA

CHEMICAL STABILITY: Stable

CONDITIONS OF CHEMICAL INSTABILITY: Elevated temperatures (the presence of certain metals may promote catalytic decomposition of the gas)

INCOMPATIBLE MATERIALS: Polystyrene, natural rubber, alloys containing greater than 2% magnesium in the presence of water.

CONDITIONS OF REACTIVITY: None known

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may produce toxic fumes of fluorides and chlorides.

HAZARDOUS POLYMERIZATION: Will not occur.

ECOLOGICAL INFORMATION

No adverse ecological effects expected. This product is not classified as a Class I or Class II ozone-depleting chemical. This material is not listed a marine pollutant by TDG regulations.

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled with valve closed, with any valve outlet plugs or caps secured and valve protection cap in place to MEGS for proper disposal. For emergency disposal, contact the closest MEGS location.

TRANSPORT INFORMATION

TDG/IMO SHIPPING NAME: Chloropentafluoroethane

TDG CLASSIFICATION: CLASS 2.2: Non-flammable, non-corrosive and non-poisonous gas

IDENTIFICATION #: UN1020

SHIPPING LABEL(S): Non-flammable, non-poisonous gas

PLACARD (when required): Non-flammable, non-poisonous gas

SPECIAL SHIPPING INFORMATION: Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck, cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

REGULATORY INFORMATION

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, provincial, and local regulations.

WHIMIS (CANADA): CLASS A: Compressed gas

International Regulations

EINECS: Not available

DSCL (EEC): This product is not classified according to the EU regulations

INTERNATIONAL LISTS: No products were found

| |
|-------------------------------|
| REGULATORY INFORMATION |
|-------------------------------|

PREPARED BY: Safety & Environmental Services

DATE PREPARED: 09/01/1999

LAST REVISION DATE: 09/13/2004

THE INFORMATION, RECOMMENDATIONS AND DATA CONTAINED IN THIS DOCUMENT ARE INTENDED TO BE USED BY PROPERLY TRAINED AND QUALIFIED PERSONNEL ONLY AND AT THEIR SOLE RISKS AND DISCRETION. THE INFORMATION, RECOMMENDATIONS AND DATA HEREIN CONTAINED ARE DERIVED FROM SOURCES WHICH WE BELIEVE TO BE RELIABLE. HOWEVER, MEGS INC. MAKES NO REPRESENTATION AND GIVES NO WARRANTY OF ANY KIND WHATSOEVER WITH RESPECT TO THEIR ACCURACY OR COMPLETENESS AND ASSUMES NO LIABILITY FOR DAMAGES OR LOSS ARISING DIRECTLY OR INDIRECTLY FROM THEIR USE, WHETHER PROPER OR IMPROPER.