

SAFETY DATA SHEET

RETROCHILL

Revision Date: June 12, 2015

Version: 2.1

Supersedes: December 7, 2012

Section 1 – Identification of the Substance/Mixture and of the Company/Undertaking

Product Name: RETROCHILL™

Part Numbers: 70501KIT, 70505KIT, 70510KIT

Product Use: Converting R12 systems to R134A

Manufacturer: Cliplight Manufacturing

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Section 2 – Hazards Identification

GHS Classification

Aerosols: Category 3

Skin irritation: Category 3

Eye damage/irritation: Category 2A

Carcinogenicity: Category 2

Specific Target Organ Toxicity-Repeated Exposure: Category 2, Respiratory System

Label elements:



Warning

Hazard statements:

H229: Pressurized container: May burst if heated

H316: Causes mild skin irritation

H319: Causes serious eye irritation

H351: Suspected of causing cancer

H373: May cause damage to the respiratory system on repeated or prolonged exposure

Precautionary statements:

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from hot surfaces, sparks, open flames and other ignition sources. No smoking.

P251 Do not pierce or burn, even after reuse.

P264 Wash hands thoroughly after handling.

P280 Wear protective gloves and clothing and eye protection.

P332 + P313 If skin irritation occurs: Get medical advice.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical attention.

P405 Store locked up.

P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

P501 Dispose of contents and container in accordance with local, state and national regulations.

SAFETY DATA SHEET**RETROCHILL**

Revision Date: June 12, 2015

Version: 2.1

Section 3 – Composition/Information on Ingredients

Ingredient Name	CAS No.	EC No.	Composition, wt%
1,1,1,2-Tetrafluoroethane	811-97-2	212-377-0	25-65
Methylene chloride	75-09-2	200-838-9	1
Cyclohexanone	108-94-1	203-631-1	1

Remaining components of this product are not classified as hazardous under the GHS, 29 CFR 1910.1200, WHMIS 2015, or (EC) No 1272/2008.

Section 4 – First-Aid Measures**Inhalation**

Move person to fresh air. Give artificial respiration if breathing has stopped. Get prompt medical attention.

Eye Contact

Immediately flush eyes with a large amount of water for at least 15 minutes. If symptoms exist or persist, get prompt medical attention.

Skin Contact

Remove contaminated clothing. Flush skin with warm, not hot, water then wash thoroughly with soap and water. If frostbite has occurred or irritation persists, seek medical attention.

Ingestion

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician immediately.

Acute and Delayed Symptoms

Symptoms of inhalation include dizziness, confusion, drowsiness, nausea, or unconsciousness. At higher levels, heartbeat irregularity may be a result with additional symptoms such as heart-thumping.

Skin contact can lead to symptoms such as frostbite, irritation, redness or swelling.

Eye contact can lead to symptoms such as frostbite, irritation and redness.

Special Treatment Needed

Because inhalation may lead to cardiac irregularities, treatment of patients with catecholamine drugs should be avoided.

Section 5 – Fire-Fighting Measures**Extinguishing media**

DO NOT USE WATER STREAM. Use polar solvent foam, carbon dioxide, dry chemical or water spray.

Special hazards arising from the substance or mixture

Toxic fumes are generated when material is exposed to fire and fire conditions.

Advice for firefighters

Wear self-contained breathing apparatus and protective clothing as required.

Vapours may travel considerable distance to a source of ignition and flash back.

Part of the product is liquid under ambient conditions and is flammable. If the product's liquid portion is exposed to fire or an ignition source that results in flammability, extinguish with polar solvent foam, carbon dioxide, dry chemical, or water spray. The pressurized cans may rupture when exposed to fire or excessive heat. Use water spray to cool containers exposed to fire.

SAFETY DATA SHEET**RETROCHILL**

Revision Date: June 12, 2015

Version: 2.1

Section 6 – Accidental Release Measures**Personal precautions**

Evacuate the spill area. Floor may be slippery if non-volatile components in product have wetted the floor; use care to avoid falling. Shut off all sources of ignition. Wear chemical-resistant gloves and chemical safety goggles or safety glasses with side shields. Provide adequate ventilation.

Environmental precautions

Avoid runoff to sewers and waterways. Do not let product enter drains.

Methods and materials for containment and cleaning up

Ventilate the spill area. Avoid breathing vapour. Floor may be slippery if non-volatile components in product have wetted the floor; use care to avoid falling. Contain non-volatile material immediately with inert adsorption materials. Transfer liquids and solid adsorption materials and diking material to separate suitable containers for disposal. Use non-sparking tools. Dispose of waste material in accordance with all local, state, provincial, and national requirements.

Section 7 – Handling and Storage**Conditions for safe handling**

Ensure adequate ventilation. Avoid causing and inhaling vapour. Avoid exposure of product to very hot surfaces.

Conditions for safe storage

Store in a cool, well-ventilated place. Keep containers dry. Store product away from reactive and corrosive materials. The minimum recommended storage temperature for this material is -29°C/-20° F. The maximum storage temperature is 49°C/120°F.

Section 8 – Exposure Controls/Personal Protection**Control Parameters**

Component	CAS No.	Value	Control Parameter	Basis
1,1,1,2-Tetrafluoroethane	811-97-2	TWA	1000 ppm	OSHA
Cyclohexanone	108-94-1	TWA	20 ppm	ACGIH TLV
		STEL	50 ppm	ACGIH TLV
		TWA	10 ppm 40.8 mg/m ³	UK EH40 WEL EC Directive 2000/39/EC
		STEL	20 ppm 81.6 mg/m ³	UK EH40 WEL EC Directive 2000/39/EC
Methylene chloride	75-09-2	TWA	50 ppm	ACGIH
		STEL	125 ppm	OSHA specifically regulated chemicals/carcinogen
		PEL	25 ppm	OSHA specifically regulated chemicals/carcinogen
		TWA	100 ppm 350 mg/m ³	UK EH40 WEL
		STEL	300 ppm 1060 mg/m ³	UK EH40 WEL

SAFETY DATA SHEET**RETROCHILL**

Revision Date: June 12, 2015

Version: 2.1

Engineering Controls

Provide adequate ventilation.

Protective Equipment

Wear chemical-resistant clothing and safety glasses with side shields or splash goggles. Wear insulated gloves suitable for low temperatures.

Hygiene

Handle in accordance with good industrial hygiene and safety practices.

Section 9 – Physical and Chemical Properties

Appearance	Clear liquid (under pressure)
Odour	Ethereal
Odour threshold	No data available
pH (water extract)	<7
Melting point/freezing point	<-26°C (-15°F)
Initial boiling point	-26.5°C (-15.7°F)
Flash point	Non-flammable product; 44°C (111°F) for liquid fraction
Evaporation rate	>120
Flammability or explosive limits	
Lower explosive limit (ppm)	11000 (liquid fraction)
Upper explosive limit (ppm)	94000 (liquid fraction)
Vapour pressure	590 kPa (85.6 psia) @ 20°C (68°F)
Vapour density	3.3
Specific gravity (liquid fraction)	1.13
Solubility	Not soluble in water
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	>400°C (750°F)
Decomposition temperature	No data available
Viscosity	28 cP @ 20°C (68°F)
Percent Volatility (% wt)	52

Section 10 – Stability and Reactivity**Reactivity**

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Unlikely

Conditions to avoid

This is a pressurized container; protect from sunlight and do not expose to temperatures exceeding 49°C (120°F).

Incompatible materials

Avoid contact with strong oxidizing and reducing agents and alloys containing more than 2 percent magnesium.

SAFETY DATA SHEET**RETROCHILL**

Revision Date: June 12, 2015

Version: 2.1

Hazardous decomposition products

Thermal decomposition may yield toxic decomposition products which include alkyl low molecular weight components, organic chlorides, carbon monoxide and dioxide, hydrochloric acid, hydrofluoric acid, organic pyrolytic components, and phosgene.

Section 11 – Toxicological Information

The toxicological properties of this product have not been investigated. Information for some components is provided below.

Acute toxicity

Oral LD50 rat: Cyclohexanone - 1534 mg/kg
Methylene chloride - >2000 mg/kg

Skin LD50 rabbit: Cyclohexanone – 794-3160 mg/kg
Methylene chloride - >2000 mg/kg

Inhalation LC50 rat: 1,1,1,2-Tetrafluoroethane – 500000 ppm
Cyclohexanone – >6.2 mg/l
Methylene chloride – 52000 mg/m³

Skin corrosion/irritation

Rabbit: 1,1,1,2-Tetrafluoroethane – slight irritation
Cyclohexanone - irritation
Methylene chloride – irritation – 24 h

Serious eye damage/irritation

Rabbit: 1,1,1,2-Tetrafluoroethane – slight irritation
Cyclohexanone – risk of serious damage to eyes – 24 h
Methylene chloride – irritation – 24 h

Respiratory or skin sensitization

Guinea pig: 1,1,1,2-Tetrafluoroethane – not a skin sensitizer

Repeated dose toxicity

Inhalation rat: 1,1,1,2-Tetrafluoroethane - NOEL: 40000 ppm

Germ cell mutagenicity

1,1,1,2-Tetrafluoroethane: No mutagenic effects in animals or in tests on bacterial or mammalian cell cultures.
Cyclohexanone: Ames test (*S. typhimurium*) – negative
Human fibroblast – Laboratory experiments have shown mutagenic effects.
Methylene chloride: Rat – DNA damage

Carcinogenicity

Methylene chloride: Rat – inhalation
Tumorigenic: Carcinogenic by RTECS criteria. Endocrine: Tumors

Methylene chloride:
IARC: 2B - Group 2B: Possibly carcinogenic to humans.
NTP: Reasonably anticipated to be a human carcinogen.
OSHA: Specifically regulated chemical/carcinogen.

SAFETY DATA SHEET**RETROCHILL**

Revision Date: June 12, 2015

Version: 2.1

Reproductive toxicity

1,1,1,2-Tetrafluoroethane: No toxicity to reproduction.

Cyclohexanone: Overexposure may cause reproductive disorders based on tests with laboratory animals.

Specific target organ toxicity – single exposure

Cyclohexanone: Acute inhalation toxicity – breathing difficulties

Methylene chloride: May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity – repeated exposure

Methylene chloride:

Inhalation – May cause damage to organs through prolonged or repeated exposure (central nervous system).

Oral – May cause damage to organs through prolonged or repeated exposure (liver, blood).

Aspiration hazard

No data available

Potential Health Effects:**Inhalation:** Inhalation of high vapour concentrations can cause anesthetic effects including dizziness, weakness, nausea and unconsciousness. May cause damage to the respiratory system on repeated or prolonged exposure.**Eye Contact:** Liquid splashes cause serious eye irritation. Vapour spray may cause irritation or freeze burns.**Skin Contact:** Vapour spray may cause freeze burns. Product can cause skin irritation.**Ingestion:** Extremely unlikely to occur in use. May be harmful if swallowed.**Other Adverse Effects:** Contains OSHA specifically regulated chemical/carcinogen and other components identified as possible human carcinogens.**Section 12 – Ecological Information**

No data are available for the ecological effects of this product; some information on components is provided below.

Ecotoxicity

Toxicity to fish:	Methylene chloride
	LC50 – 96 h Species: Pimephales promelas Value: 193 mg/l
	Methylene chloride
	Mortality NOEC – 144 h Species: Cryprinodon variegatus Value: 130 mg/l
Toxicity to other organisms	Cyclohexanone
	EC50 – 24 h Species: Daphnia magna Value: 820.0 mg/l
	Methylene chloride
	EC50 – 48 h Species: Daphnia magna Value: 1682 mg/l

SAFETY DATA SHEET**RETROCHILL**

Revision Date: June 12, 2015

Version: 2.1

Persistence and degradability

Cyclohexanone
Biodegradability
Result: 80-90% - Readily biodegradable

Methylene chloride
Biodegradability
Result: <26% - Not readily biodegradable

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

Section 13 – Product Disposal**Product**

Dispose of in compliance with local, state/provincial or federal regulations. Do not vent to the atmosphere.
The provisions of the U.S. Clean Air Act require any residual gases to be recovered.

Contaminated packaging

Dispose of as for product.

Section 14 – Transport Information**DOT Hazard Description:**

<u>SHIPPING NAME</u>	<u>HAZARD CLASS</u>	<u>ID NO.</u>	<u>PACKING GROUP</u>
Consumer Commodity	ORM-D	UN 1950	N/A

DOT/IMDG/IACO/IATA/TDG

Shipping Name: AEROSOLS, non-flammable

UN #: 1950

Class: 2.2

Section 15 – Regulatory Information

All components of this product are listed in the U.S. Toxic Substances Control Act (TSCA) Inventory.

All components of this product are on the Canadian Domestic Substances List (DSL).

All components of this product are on or in compliance with the Australian Inventory of Chemical Substances (AICS).

A chemical safety assessment has not been carried out for this product.

SAFETY DATA SHEET

RETROCHILL

Revision Date: June 12, 2015

Version: 2.1

Section 16 – Other Information

HMIS CLASSIFICATION

Health Hazard:	2
Flammability:	0
Physical Hazards:	0

Notes to this Revision

This version 2.1 (June 12, 2015) has been updated from the previous version of December 7, 2012 to conform to the requirements of the GHS, OSHA Hazard Communications Standard 2012, WHMIS 2015 and (EU) No 453/2010.

Significant changes have been made to the classification of the product. In addition, information has been expanded in many sections related to the safe use, handling and storage of the product.

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