

SUPER COLD 134

403A

Safety Data Sheet

Section 1: Product and Company Identification

Product Identifier and Other Means of Identification

Product Name: Super Cold 134**MSDS Code:** 403A-Aerosol**Related Part #:** 403A-285G, 403A-400G

Recommended Use and Restriction on Use

Use: For cooling electronic components and locating thermal intermittents**Uses Advised Against:** Not available

Details of Manufacturer or Importer

Manufacturer

MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

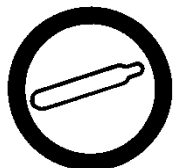
☎ 1-800-340-0772**☎** 1-905-331-1396**FAX** 1-800-340-0773**FAX** 1-905-331-2682**E-MAIL:** support@mgchemicals.com**E-MAIL:** info@mgchemicals.com**WEB** www.mgchemicals.com**E-MAIL** (Competent Person): sds@mgchemicals.com

Emergency Phone Number

For hazardous material incidents ONLY—leaks, spills, fires, exposures or accidentsUSA or CANADA: Call CHEMTREC ☎: **1-800-424-9300****For emergencies involving dangerous goods;** Collect 24/7CANADA: Call CANUTEC ☎: **1-613-996-6666** or ***666** on cellular phones


Section 2: Hazards Identification

WHMIS Classification



A – Aerosol Container

GHS Categories

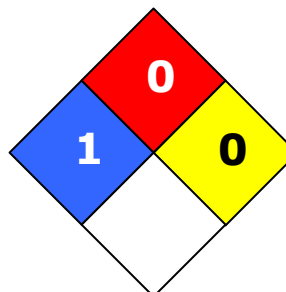
Criteria	Category	Signal Word	Pictograms
Gas under pressure Liquefied gas	3	Warning	

Other Classifications

HMIS® RATING

HEALTH:	1
FLAMMABILITY:	0
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:


0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

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Label Elements

Signal Word	WARNING
Pictograms	Hazard Statements
	H280: Contains gas under pressure; may explode if heated
	Precautionary Statements
Prevention	P251: Do not pierce or burn, even after use.
Storage	P410 + P412: Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F].

Hazards Not Otherwise Classified

HCS2012 Criteria	Hazard Statements/Precautionary Statement	Signal Word
Simple Asphyxiant	May displace oxygen and cause rapid suffocation.	Warning

The ejected liquid or jet may cause frostbite in contact with skin or eyes.

Inhalation overexposure through intentional abuse or use in confined space may cause cardiac or central nervous systems effects.

Section 3: Hazardous Ingredients

CAS #	Chemical Name	Wt%
811-97-2	1,1,1,2-tetrafluoroethane	>99%

Note: Commonly referred to as HFC 134a

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Section 4: First Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF IN EYES	P305, P351+ P338, P337+P313, P336+P315
Immediate Symptoms	<i>frostbite, cold burns, irritation, tearing, redness</i>
Response	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention if irritation persists.
If frostbite occurs	Thaw frosted parts with lukewarm water. Do not use hot water. Do not rub affected area. Get immediate medical attention.
IF ON SKIN	P302, P352, P332+P313, P336+P315
Immediate Symptoms	<i>frostbite, cold burns, irritation</i>
Response	Wash with plenty of water. Get medical advice/attention if skin irritation occurs.
If frostbite occurs	Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical attention.
IF INHALED	P304, P340, P310
Immediate Symptoms	<i>dizziness, drowsiness, heart thumping, lightheadedness</i>
Response	Remove person to fresh air (out of the contaminated zone) and keep comfortable for breathing.
If feeling unwell	Get medical advice/attention
IF SWALLOWED	P301, P330, P310 <i>(Not a likely route of exposure under normal use)</i>
Immediate Symptoms	<i>frostbite (mouth), irritation</i>
Response	Rinse mouth with lukewarm water. Do NOT induce vomiting. Get medical advice/attention if feeling unwell.

Medical Advice

Avoid giving catecholamine drugs (such as epinephrine) due to possible cardiac disturbance. Treat symptomatically.

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Section 5: Fire Fighting Measures

Autoignition Temperature	>750 °C [797 °F]	Flash Point	Not applicable	LFL [LEL]^{a)}	Not applicable
				UFL [UEL]	Not applicable

In case of fire P370 +P378

Response Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers.

Combustion Products Produces CO, CO₂, halogenated compounds, and hydrogen fluorides

Fire-Fighter Wear self-contained breathing apparatus for fire fighting

General Information Vapors may accumulate in low-lying areas. Aerosol container may erupt with force at temperatures above 50 °C [122 °F]. Produces irritating and toxic fumes in fires or in contact with hot surfaces.

a) LF[E]L = Lower Flammability [or Explosion] Limit (in volume %);
UF[E]L = Upper Flammability [or Explosion] Limit (in volume %)

Section 6: Accidental Release Measures

Personal Protection See Section 8. Avoid breathing the mist/vapors.

For very large spills, wear self-contained breathing apparatus before approaching the spill. Wear cold-insulating clothing and gloves.

Containment For aerosol can size spill, leave the immediate spill area to avoid contact with the liquid. No containment required under normal circumstances.

If it can safely be done, extinguish open flames or remove high temperature sources to avoid producing toxic decomposition products.

Cleaning Ensure adequate ventilation, especially in low or enclosed areas. The product will turn gaseous and be dispersed.

Disposal Not applicable

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Section 7: Handling and Storage

- Prevention** Do not get in eye, on skin, or on clothing.
Do not breathe mist/vapors/spray. In cases of inadequate ventilation wear respiratory protection.
Do not pierce or burn, even after use.
- Handling** Wear cold-insulating gloves if exposure to liquid or aerosol jet is likely. Wear protective gloves/eye protection.
- Storage** Protect from sunlight. Do not expose to temperatures exceeding 50 °C [122 °F].
RECOMMENDATION: Keep in well ventilated room.

Section 8: Exposure Controls/Personal Protection

Routes of Entry

Inhalation, skin, eyes

Substances with Occupational Exposure Limit Values

Chemical Name	Country or Vendor	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
1,1,1,2-tetrafluoroethane	MG Chemicals ^{a)}	1,000 ppm	
	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	Canada	Not established	Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database² of the Canadian Centre for Occupational Health and Safety (CCOHS) a data from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) MG Chemicals recommended limit corresponding to prevalent international threshold values

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Normal ventilation is generally adequate, except in enclosed or low lying area.

Keep airborne concentrations below exposure limits.

Personal Protective Equipment**Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection

Wear appropriate protective clothing to prevent skin contact.

RECOMMENDATION: If exposure to jet or liquid is likely, use cold-insulating gloves to protect against skin.

Respiratory Protection

In high exposure scenarios, use a full-face respirator with multipurpose combination of (US) or type AXBEK (EN 13387) to supplement engineering control. For extreme exposures, use full-face, self-contained breathing apparatus or supplied by air.

RECOMMENDATION: Consult your local safety supply store to ensure your respirator has filter cartridges appropriate for the ingredients listed in section 3 of this MSDS, and that the respirator is fitted to the employee by a professional.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

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Section 9: Physical and Chemical Properties

Physical State	Liquefied gas	Appearance	Colorless
Odor	Slight, ether-like	Odor Threshold	Not available
pH	Not available	Specific Gravity	1.22
Solubility in Water @ 25 °C	0.15% (wt)	Melting/Freezing Point	-101 °C [-105 °F]
Boiling Point	-26.2°C [-15.2 °F]	Evaporation Rate	≥1 (Ether = 1)
Flash Point	Not applicable	Vapor Pressure @ 25 °C	630 kPa [4 725 mmHg]
Lower Flammability Limit	Not applicable	Upper Flammability Limit	Not applicable
Auto-ignition Temperature	750 °C [1 382 °F]	Decomposition Temperature	Not available
Viscosity	Not applicable	Vapor Density	3.5 (Air = 1)
Partition Coefficient	1.06 ^{a)}		

Note: Literature values are used.

a) Octanol-water LogP value

Section 10: Stability and Reactivity

Stabilities	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, excessive heat, and incompatible substances.
Incompatibilities	Strong oxidizing agents, alkali or alkali earth metals, powdered aluminum, zinc, magnesium, and beryllium
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5

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Section 11: Toxicological Information

Routes of Exposure

Eyes, inhalation, and skin

Symptoms Summary

Eyes	See skin summary.
Skin	Contact with the liquid may cause frostbite due to heat lost caused by rapid evaporation. Aerosol jet can reach -55 °C; exposure to jet can lead to frostbites.
Inhalation	Extreme exposure may cause central nervous system depression and irregular heart beat.
Ingestion	See inhalation and skin summaries.
Chronic	None known.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation	TCLo inhalation
1,1,1,2-tetrafluoroethane	Not available	Not available	1,500 g/m ³ 4 h Rat	Not available

Note: Representative toxicity data from by RTECS database of the Canadian Centre for Occupational Health and Safety (CCOHS)¹ data from supplier MSDS were also consulted.

Other Toxicological Effects

Skin corrosion/irritation	May cause skin irritation.
Serious eye damage/irritation	May cause eye irritation.
Sensitization (allergic reactions)	None known or expected.
Carcinogenicity (risk of cancer)	Not classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP
Mutagenicity (risk of heritable genetic effects)	No mutagenic effects observed in four tests.
Reproductive Toxicity (risk to sex functions)	No data available

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Teratogenicity (risk of fetus malformation)	No observed effect level (NOEL) for rabbit and rat is 40 000 ppm.
STOT-single exposure	Can affect the central nervous system and cardiovascular systems by inhalation at extreme doses that do not give rise to classification
STOT-repeated exposure	Chronic no observed effect level 10 000 ppm.
Aspiration hazard	Not applicable

Section 12: Ecological Information

The IMDG Code criteria and the raw-material MSDS along with supporting data for the classification of registered substances from the European Chemical Agency database (<http://echa.europa.eu>) were used.

The 1,1,1,2-tetrafluoroethane substance is not classifiable as an environmental toxicant.

Acute Ecotoxicity

Available toxicity data does not meet classification thresholds

Chronic Ecotoxicity

Not data available

Biodegradability

Not data available

Global Warming Potential

The 100 years global warming potential is 1430.

Other Effects

VOC exempt (0% by EPA and WHIMS guidelines)

*VOC = *Regulated Volatile Organic Content*

Section 13: Disposal Information

Dispose of contents in accordance with all local, regional, national, and international regulations.

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Section 14: Transport Information

Ground

Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations) and **USA CFR 49 Regulations** (Parts 100 to 185).

Limited Quantity



Canada and USA

UN number: Not applicable
Shipping Name: Not applicable
Class: Not applicable
Packing Group: Not applicable
Marine Pollutant: No

CANADA—Permit for Equivalent Level of Safety: Refer to TC-SU4836.

<http://wwwapps.tc.gc.ca/wwwdocs/TDGCertificates/doc/4836-eng.doc>

USA—Special Provision: Refer to DOT-SP 10232. A copy of this special permit is required.

<http://www.sextoncan.com/pdf/certification/10232-2010040083-MMS.pdf>

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Limited Quantity



USA

UN number: UN3159
Shipping Name: 1,1,1,2-Tetrafluoroethane
Class: 2.2
Packing Group: Not applicable
Marine Pollutant: No

USA—Special Provision: Refer to DOT-SP 10232. A copy of this special permit is required.

<http://www.sextoncan.com/pdf/certification/10232-2010040083-MMS.pdf>

Limited Quantity



Canada and Global (Excluding USA)

UN number: UN1950
Shipping Name: AEROSOL, non-flammable
Class: 2.2
Packing Group: Not applicable
Marine Pollutant: No

CANADA—Permit for Equivalent Level of Safety: Refer to TC-SU4836.

<http://wwwapps.tc.gc.ca/wwwdocs/TDGCertificates/doc/4836-eng.doc>

Note: Avoid shipping by air if possible.

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SUPER COLD 134**403A****Sea****Refer to ICAO-IATA Dangerous Goods Regulations.****Limited Quantity**

USA

UN number: UN3159**Shipping Name:** 1,1,1,2-Tetrafluoroethane**Class:** 2.2**Packing Group:** Not applicable**Marine Pollutant:** No**USA—Special Provision:** Refer to DOT-SP 10232. A copy of this special permit is required.<http://www.sextoncan.com/pdf/certification/10232-2010040083-MMS.pdf>**Limited Quantity**

Canada and Global (Excluding USA)

UN number: UN1950**Shipping Name:** AEROSOL, non-flammable**Class:** 2.2**Packing Group:** Not applicable**Marine Pollutant:** No**CANADA—Permit for Equivalent Level of Safety:** Refer to TC-SU4836.<http://www.wapps.tc.gc.ca/wwwdocs/TDGCertificates/doc/4836-eng.doc>

Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.

Section 15: Regulatory Information**Canada****Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL/NDSL.

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

Health Canada

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

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SUPER COLD 134**403A****USA****CAA** (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product does not contain substances that are listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product does not contain substances which are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, Sept 2, 2011 revision, USA).

This product does not contain any of the listed substances.

Europe

This product is not classified under the DPD regulations.

Section 16: Other Information

MSDS Prepared by Michel Hachey
Date of Issue 05 November 2013
Supersedes 17 April 2013
Reason for Changes: Change to HCS2012 GHS format

Reference

- 1) ACGIH 2013 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2013).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

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SUPER COLD 134**403A****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

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