

Material Safety Data Sheet

Revision Date October 22, 2008	Prepared by Patti Rogers	Technical Information 1-800-201-8822 or support@mgchemicals.com
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Section 1: Product Identification

MSDS Code: 411 - aerosol

Name: HFE Solvent

Related Part Numbers: 411-300G

Use: For cleaning electronic parts and components.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
163702-08-7	Methyl nonafluoroisobutyl ether	35-38%	600ppm	N/E	N/E
163702-07-6	Methyl nonafluorobutyl ether	35-38%	600ppm	N/E	N/E
811-97-2	1,1,1,2 - tetrafluoroethane	28-31%	1000ppm	N/E	N/E

Section 3: Hazards Identification

Eyes:	May cause mild eye irritation.
Skin:	Not expected to cause skin irritation.
Inhalation:	Practically non-toxic.
Ingestion:	Swallowing a large amount of this product is unlikely to produce serious illness.
Chronic:	None known.

Section 4: First Aid Measure

Eyes:	Remove contact lenses. Flush with water . Get medical aid if symptoms persist.
Skin:	Wash skin with soap and water. Get medical aid if symptoms persist.
Inhalation:	Immediately remove from exposure to fresh air. Get medical aid if symptoms persist.
Ingestion:	Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

Section 5: Fire Fighting Measures

Autoignition Temperature:	405°C	Flash Point:	N/a	LEL / UEL:	N/a
Extinguishing Media:	Use water spray, dry chemical, carbon dioxide, or chemical foam.				
General Information:	Containers may explode in the heat of a fire.				

Section 6: Accidental Release Measures

Spill Procedure:	Provide adequate ventilation. Wear appropriate personal protection. Wipe up residue with paper towel and place in container.
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Section 7: Handling and Storage

- Handling:** Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale. Do not expose container to heat or flame.
- Storage:** Store in a cool, dry, well-ventilated area, away from incompatible substances.

Section 8: Exposure Controls

- Routes of entry:** Eyes, ingestion, inhalation, and skin.
- Ventilation:** Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.
- Personal Protection:** Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	Aerosol	Odor: Slight	Solubility: <12ppm	Evaporation Rate: N/e	
Boiling Point:	60°C	Specific Gravity: 1.5	Vapor Pressure: 202 mmHg @25°C	Vapor Density: 8.6 (Air=1)	pH: 7

Section 10: Stability and Reactivity

- Stability:** Stable at normal temperatures and pressures.
- Conditions to avoid:** Temperatures over 40°C, ignition sources, and incompatible substances.
- Incompatibilities:** Alkali and alkaline earth metals; powdered aluminum, zinc, magnesium, and beryllium; strong bases.
- Polymerization:** Will not occur.
- Decomposition:** Halogens, halogen acids, possibly carbonyl halides, carbon dioxide, and carbon monoxide.

Section 11: Toxicological Information

- Sensitization:** (effects of repeated exposure) No
- Carcinogenicity:** (risk of cancer) No
- Teratogenicity:** (risk of malformation in an unborn fetus) No
- Reproductive Toxicity:** (risk of sterility) No
- Mutagenicity:** (risk of heritable genetic effects) No

Lethal Exposure Concentrations:	Ingestion (LD50):	Inhalation (LC50):	Skin (LD50):	Inhalation (TCLo):
(Perfluoroisobutyl) methyl ether	N/A	N/A	N/A	N/A
(Perfluoro-n-butyl) methyl ether	N/A	N/A	N/A	N/A
1,1,1,2 - tetrafluoroethane	N/A	1500 gm/m ³ /4H Rat	N/A	30 pph/6H Rat

Section 12: Ecological Information

General Information:

- Volatile Organic Compounds, % by weight: 0%
- Volatile Organic Compounds, grams per litre: 0 g/l



Section 13: Disposal Information

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations.

Section 14: Transportation Information

Ground:

Consumer Commodity, ORM-D

Air:

Shipper must be trained and certified. Refer to IATA Dangerous Goods Regulations.

Shipping name: **Consumer Commodity ORM-D**, ID/UN Number: **ID8000**, Hazard Class: 9

Sea:

UN# 1950. Class 2.2. **Shipper must be trained and certified. Refer to IMDG regulations.**

Shipping name: **Aerosol, flammable, in Limited Quantities**, ID/UN Number: **UN1950**, Hazard Class: 2.2

Section 15: Regulatory Information

CANADA

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

DSL

All ingredients in this product are listed on the Domestic Substances List

Health Canada

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

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.

WHMIS

This product belongs to the following categories: **A**

CAA (Clean Air Act, USA)

This product does not contain any class 1-ozone depletors.

This product does not contain any class 2-ozone depletors.

This product does not contain any chemicals listed as hazardous air pollutants.

USA

SARA (Superfund Amendments and Reauthorization Act of 1986, USA, 40CFR 372.4)

None of the chemicals in this product have a reportable quantity.

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

This product does not contain any chemicals 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, May 1, 1997 revision, USA)

This product does not contain any chemicals listed.

California Air Resource Board Consumer Products Regulations

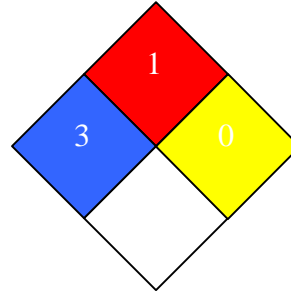
This product complies with the Electronics Cleaner category limit of 75% VOC's by weight.

Section 15: Regulatory Information Cont..

HMIS RATING

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

NFPA CODES



EUROPE

RoHS

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

WEEE

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

Definitions: N/A = not applicable, N/E = not established

Disclaimer: This material safety data sheet is provided as an information resource only. M.G. Chemicals believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.