

## HFE Solvent



411

**100% Non-flammable, 100% Non-conductive, Non-toxic.**

Use when requiring an absolute non-flammable, non-toxic and plastic safe cleaner degreaser. Cleans energized circuits, contacts, motors and other electronic equipment. A TF Solvent replacement. Approved by SNAP without restrictions. Excellent for use with Vapor Degreasers and Ultrasonics. Extra effective with the use of M.G. Cat. #'s [852](#) and [853](#) Hog Hair cleaning brushes.

### Available Sizes

Catalog Number	Sizes Available	Description
411-300G	300g (10.5 oz)	Aerosol
411-4L	<b>SPECIAL ORDER</b> 4L (1 gal)	Liquid



# Material Safety Data Sheet

## 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.

## 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

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

<b>Lethal Exposure Concentrations:</b>	<b>Ingestion (LD50):</b>	<b>Inhalation (LC50):</b>	<b>Skin (LD50):</b>	<b>Inhalation (TCLo):</b>
(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/m3/4H 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 depleters.

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

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.