

HFMOP

SAFETY DATA SHEET

OSHA HCS (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**Product identifier**

Chemical Name 1,1,1,3,3,3-Hexafluoro-2-methoxypropane
CAS No. 13171-18-1
Trade Name HFMOP; HFE-356mmz1
Product Code None

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s) Solvent in vapor degreasing / vapor cleaning
Uses Advised Against See 49 CFR 721.11342

Identity of manufacturer/importer and other suppliers

Company Identification Halocarbon Life Sciences, LLC
6525 The Corners Parkway; Suite 200
Peachtree Corners, GA 20092
(470) 419-6363
sds@halocarbon.com

Telephone
E-Mail (competent person)

Emergency telephone number

Emergency Phone No. CHEMTREC 24 hr. 1-800-424-9300 / 1 (703) 527-3887
(Collect calls accepted)

SECTION 2: HAZARDS IDENTIFICATION**Classification of the substance or mixture**

OSHA HCS (29 CFR 1910.1200)

Specific target organ toxicity — single exposure: Category 3

Label elements

Hazard Symbol

**WARNING**

Signal Word(s)

Hazard Statement(s)

H336: May cause drowsiness or dizziness.

Precautionary Statement(s)

P261: Avoid breathing vapours.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P264: Wash hands and exposed skin thoroughly after handling.

P301+P330: IF SWALLOWED: Rinse mouth. Treat symptomatically.

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 advice/attention.

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363: Wash contaminated clothing before reuse.

P102: Keep out of reach of children.

Avoid exposure during pregnancy.

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Other hazards

Similar substances have produced reproductive and/or developmental effects in laboratory animals or have been implicated in higher than normal incidences of problem pregnancies among persons exposed to anesthetic gases of this type.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	% wt.	CAS No.
1,1,1,3,3,3-Hexafluoro-2-methoxypropane (HFMOP) *	> 99.9	13171-18-1

* Common name(s), synonym(s) of the substance: HFMOP; Propane, 1,1,1,3,3,3-hexafluoro-2-methoxy-; HFE-356mmz1

SECTION 4: FIRST AID MEASURES



Description of first aid measures

Inhalation	Not normally required. Move person to fresh air. If breathing is laboured, administer oxygen. If symptoms develop, obtain medical attention.
Skin Contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. If irritation (redness, rash, blistering) develops, get medical attention. Wash contaminated clothing before reuse
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Ingestion	Rinse mouth. Get medical attention.

Most important symptoms and effects, both acute and delayed None known.

Indication of any immediate medical attention and special treatment needed None known.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

-Suitable Extinguishing Media Non-flammable / Non-combustible. As appropriate for surrounding fire.
 -Unsuitable Extinguishing Media None known.

Special hazards arising from the substance or mixture

None known.

Advice for fire-fighters

A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

Hazardous decomposition product(s)

Thermal decomposition products include: Carbon monoxide, Carbon dioxide, and hydrogen fluorides.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear protective gloves/eye protection. Avoid breathing mist/vapors/spray.

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Environmental precautions	Avoid run off to waterways and sewers.
Methods and material for containment and cleaning up	Follow the Spill clean up guidelines as suggested in the Hazardous and non-hazardous waste regulations. Transfer to a container for disposal or recovery.
Reference to other sections	See Section: 7 - Incompatible materials
Additional Information	None

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Wear protective gloves/eye protection/face protection. Wash hands and exposed skin thoroughly after handling. Avoid breathing vapors. Avoid exposure during pregnancy. See Section: 11
Hygiene Measures	Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.
Environmental Exposure Controls	Avoid release to the environment. Keep containers properly sealed when not in use. Avoid run off to waterways and sewers.
Conditions for safe storage, including any incompatibilities	
-Storage temperature	Store at room temperature. Keep only in original or other compatible container.
-Incompatible materials	Strong oxidising agents.
Specific end use(s)	Cleaning / degreasing solvent

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE.	CAS No.	(8hr TWA)		STEL		Note:
		PEL (OSHA)	TLV (ACGIH)	PEL (OSHA)	TLV (ACGIH)	
None	-----	-----	-----	-----	-----	-----

Recommended monitoring method	OSHA Method 106. Portable flame-ionization detectors are suitable for area monitoring.
Exposure controls	
Appropriate engineering controls	To ensure compliance with 49 CFR 721.11342, use only with adequate ventilation or closed system ventilation. Use closed dosing, transfer, sampling and application systems including connectors. Formulate in enclosed or ventilated mixing vessels. Contact supplier for specific control measures required for loading transport containers.
Personal protection equipment	
Eye/face protection	Wear protective eyewear (goggles, face shield, or safety glasses).



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Skin protection (Hand protection/ Other)



Wear protective gloves. (Neoprene)

Respiratory protection



Not normally required. In poorly ventilated areas or confined spaces, use an airline respirator or self-contained breathing apparatus.

Environmental Exposure Controls

Avoid release to the environment. Keep containers properly sealed when not in use. Avoid run off to waterways and sewers.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid
Color.	Clear Colourless
Odor	Not available
Odor Threshold (ppm)	Not available
pH (Value)	Not available
Melting Point (°C) / Freezing Point (°C)	Not available
Boiling point/boiling range (°C):	50 (122 °F)
Flash Point (°C)	> 93 (> 200 °F) - Did not flash.
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable
Explosive Limit Ranges	Not applicable
Vapour pressure (Pascal)	36,100 @ 25 °C (270.8 mmHg @ 77 °F)
Vapour Density (Air=1)	Not applicable
Density (g/ml)	1.38 (11.5 lb/gal)
Solubility (Water)	0.0014 g/ml
Solubility (Other)	Not available
Partition Coefficient (n-Octanol/water)	Not available
Auto Ignition Point (°C)	Not available
Decomposition Temperature (°C)	Not available
Kinematic Viscosity (cSt)	0.36 @ 23 °C
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Other information	Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable.
Possibility of hazardous reactions	None anticipated.
Conditions to avoid	Incompatible materials
Incompatible materials	Strong oxidising agents, Alkalis and alkali metals, Aluminum, Zinc, Alkaline earth metals.
Hazardous decomposition product(s)	Thermal decomposition products include: Carbon monoxide, Carbon dioxide, and hydrogen fluorides.

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SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Acute toxicity	Oral: LD50 >5000 mg/kg-bw Dermal: LD50 >5000 mg/kg-bw Inhalation: LC50 >24684 ppm (4-hour) (rat)
Irritation/Corrosivity	Slight irritant to rabbit eyes. Slight irritant to rabbit skin.
Sensitization	It is not a skin sensitiser in animal tests.
Repeated dose toxicity	Not to be expected (By analogy with similar materials)
Carcinogenicity	No data.

NTP	IARC	ACGIH	OSHA
No.	No.	No.	No.

Mutagenicity (By analogy with similar materials) Not to be expected (By analogy with similar materials)

Reproductive toxicity No data. Similar substances have produced reproductive and/or developmental effects in laboratory animals or have been implicated in higher than normal incidences of problem pregnancies among persons exposed to anesthetic gases of this type. Avoid exposure during pregnancy.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	
Short term	EC50 (48 hour) >125.7 mg/L (<i>Daphnia magna</i>) EC50 (72 hour) >129.8 mg/L (<i>Pseudokirchneriella subcapita</i>)
Long Term	Not to be expected.
Persistence and degradability	Not readily biodegradable. Readily volatilizes from water.
Bioaccumulative potential	The substance has low potential for bioaccumulation.
Mobility in soil	Not available.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods Disposal should be in accordance with local, state or national legislation. Consult an accredited waste disposal contractor or the local authority for advice.

SECTION 14: TRANSPORT INFORMATION

	Land transport (U.S. DOT)	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN number			UN 3334
Proper Shipping Name	Not classified as dangerous for transport.		Aviation regulated liquid, n.o.s. (Sevoflurane Related Compound B)
Transport hazard class(es)			9
Packing group			III
Environmental hazards			No.
Special precautions for user			Subject to quantity restrictions/limitations

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Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act):

- Inventory Status: All components listed and active.
- Subject of a TSCA Section 5(a)(2) Significant New Use Rule (SNUR): 49 CFR 721.11342. Process and use only as intended by the manufacturer.
- Subject to TSCA recordkeeping requirements under 40 CFR 721.125(a) thru (c) and (i).
- Subject to TSCA Section 12(b) Export Notification: 40 CFR 707.65(2)(ii) - first export to a country.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)
None	----	----	----

SARA 311/312 - Hazard Categories: See SECTION 2 - HAZARDS IDENTIFICATION

SARA 313 - Toxic Chemicals (40 CFR 372):

Chemical Name	CAS No.	Typical %wt.
None	----	----

SARA 302 - Extremely Hazardous Substances(40 CFR 355):

Chemical Name	CAS No.	Typical %wt.	TPQ (pounds)
None	----	----	----

California Proposition 65 List:

Chemical Name	CAS No.	Type of Toxicity
None	----	----

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1 & 3

Date of preparation: January 8, 2020

Additional Information: None

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