Name: HFIP or 1,1,1,3,3,3-Hexafluoro-2-Propanol  

SECTION 1  IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product Identifier
   Name: HFIP or 1,1,1,3,3,3-Hexafluoro-2-Propanol

1.2 Use of Substance/Mixture
   Use: Analytical Reagent for Gas Chromatography

1.3 Details of Manufacturer/Supplier
   Company: Regis Technologies, Inc.
   8210 N. Austin Avenue, Morton Grove, IL 60053
   847-967-6000; 800-323-8144 (toll free)
   Email: cservice@registech.com
   www.registech.com

1.4 Emergency Telephone
   INFOTRAC 800-535-5053 [U.S.A.]

SECTION 2  HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture
   GHS Classification:
   - Acute Toxicity (oral) Category 4 H302
   - Acute Toxicity (inhalation) Category 4 H332
   - Skin Corrosion / Irritation Category 1B H314
   - Serious Eye Damage / Irritation Category 1 H318

   GHS Label Elements
   Pictograms or hazard symbols

   Signal Word: Danger

   Hazard Statement:
   H302+ H332 – Harmful if swallowed or inhaled.
   H314 – Causes severe skin burns and eye damage.
   H318 – Causes serious eye damage.

   Precautionary Statements
   [Prevention]
   P261 – Avoid breathing vapors or mist.
   P261 – Wash skin thoroughly after handling.
   P271 – Use only outdoors or in a well-ventilated area.
   P280 – Wear protective gloves/eye protection/face protection.

   [Response]
   P301+P330+P331 – IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
   P303+P361+P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
   P304+P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
   P305+P551+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Abbreviations: NA—not applicable; NE—not established; U—unknown/No data available; NL—not listed; N—no; Y—yes.
Name: HFIP or 1,1,1,3,3,3-Hexafluoro-2-Propanol

SECTION 3 ............................................ COMPOSITION / INFORMATION ON INGREDIENTS ...............................................................

Name: HFIP or 1,1,1,3,3,3-Hexafluoro-2-Propanol

Synonyms: Hexafluoroisopropanol; Hexafluoro-2-propanol

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,3,3,3-Hexafluoro-2-Propanol</td>
<td>Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H302 + H332; H314; H318</td>
<td>≥ 99.0 %</td>
</tr>
</tbody>
</table>

For full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4 ................................................................... FIRST AID MEASURES ......................................................................................

4.1 Description of first aid measures

- **Eye contact:** Rinse eyes with plenty of water for at least 15 minutes; lift eyelids occasionally. If irritation persists, consult physician.
- **Skin contact:** Immediately remove contaminated clothing and shoes, then wash skin with soap and plenty of water. If irritation persists, consult physician.
- **Inhalation:** Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and keep person warm and at rest. Consult physician.
- **Ingestion:** Give large amounts of water or milk (two glasses at most). Avoid vomiting. Consult physician immediately. Do not attempt to neutralize.
- **Physician note:** Symptomatic and supportive care. There is no specific antidote.

4.2 Most important symptoms and effects, both acute and delayed.

Causes severe skin burns and eye damage. Risk of blindness. Shortness of breath. Pupil dilation.

4.3 Indication of immediate medical attention and special treatment needed.

No information available.

SECTION 5 ............................................................... FIRE-FIGHTING MEASURES ..................................................................................

5.1 Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, foam.

5.2 Specific hazards arising from the chemical.

Corrosive liquid and vapor. Water spray may be used to cool fire-exposed containers. Emits toxic fumes under fire conditions. Produces carbon oxides, hydrogen fluoride upon combustion.

5.3 Advice for fire-fighters

Wear personal protective equipment for corrosive organic/acidic vapor conditions. Wear self-contained breathing apparatus (SCBA) if necessary.

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Name: HFIP or 1,1,1,3,3-Hexafluoro-2-Propanol

SECTION 6  ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures
For non-emergency personnel - Do not breath vapors or mists. Avoid material contact. Evacuate unnecessary personnel from area, observe emergency procedures, consult an expert.
For emergency responders – Protective equipment for corrosive organic/acidic vapor conditions. See Section 8.3.

6.2 Environmental precautions
Prevent material from entering drains.

6.3 Methods of clean up
Evacuate unnecessary people from area. Isolate spilled material.
Ventilate area. Eliminate all ignition sources. Use spark proof tools.
If neat or in solution, mix with sand or similar inert adsorbent material or spill pillow.
Sweep up, seal in appropriate hazardous waste container, and hold for proper waste disposal.
Keep out of water supplies and sewers. Wash spill site after material pickup is complete.

SECTION 7  HANDLING AND STORAGE

7.1 Safe Handling Precautions
Wear suitable protective equipment to avoid contact with skin, eyes, or inhalation of corrosive organic/acidic vapors.
Wash thoroughly after handling. Immediately remove contaminated clothing.
Handle in a dry, well ventilated area. Use local exhaust if vapor can be generated.
Keep away from ignition sources. Take precautionary measures against static discharge.
Handle under nitrogen.

7.2 Storage Conditions
Store under inert gas in a tightly sealed container. Store in a cool, dry place suitable for corrosive materials, away from incompatibilities.

SECTION 8  EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure limits No data available
Environmental Do not empty into drains.

8.2 Appropriate engineering controls
Safety shower and eye wash
Local exhaust and mechanical ventilation required. Hood recommended. Fume scrubber.

8.3 Personal protection
Eye/Face Chemical safety eyewear or goggles
Hand Compatible chemical-resistant gloves: Rubber (e.g., natural rubber, neoprene, nitrile, or equivalent), Silver Shield®, Viton®
Respiratory NIOSH/MSHA or European Standards approved respirator for corrosive organic/acidic vapor if exposure limits are exceeded or irritation or other symptoms are experienced.
Dermal (not hand) Protective Clothing (e.g., lab coat)--flame retardant anti-static material recommended.
Hygiene Avoid inhalation, ingestion; contact with eyes, skin, and clothing. Wash thoroughly after handling. Wash contaminated clothing before reuse. Discard contaminated footwear.

SECTION 9  PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on physical and chemical data
Form liquid
Appearance clear, colorless
Odor strong

Abbreviations: NA—not applicable; NE—not established; U—unknown/No data available; NL—not listed; N—no; Y—yes.
Odor threshold: No data available
pH: 3-4 (aqueous solution)
Melting/freezing point: -3.3°C (26°F) (lit.)
Initial boiling point: 59°C (138°F) at 1.013 hPa (Lit.)
Flammability (liquid, solid):
Flash Point: > 100°C (> 212°F) (Lit.) Method: No data available
Flammable limits (%v/v)
LEL (lower explosive limit): No data available
UEL (upper explosive limit): No data available
Autoignition temperature: No data available
Decomposition temperature: No data available
OSHA Flammability Class: No data available
Evaporation Rate (BuAc = 1.0): No data available
Vapor pressure: 160 hPa (120 mm Hg) 20°C (68°F)
Vapor density (air=1): 5.8
Relative density (g/cm³): 1.605 at 25°C (77°F)
Water Solubility: soluble at 20°C (68°F)
Water reactive: No
Solubility (other): No data available
Partition coefficient: N-octanol/water Log Pow 1.66
Viscosity: 1.64 mPa.s 25°C (77°F)
% Volatiles: No data available

SECTION 10 ............................................................ STABILITY AND REACTIVITY ..................................................................................

10.1 Reactivity
None known, based on available information.

10.2 Chemical Stability
Stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Avoid incompatibilities.
Protect from heat and ignition sources.
Keep out of water supplies and sewers.

10.5 Incompatible materials
Alkalis metals, alkaline earth metals, aluminum, finely powdered metal, acid halides, zinc
Strong acids or bases
Strong oxidizers

10.6 Hazardous decomposition products
Combustion: carbon oxides, hydrogen fluoride

SECTION 11 ......................................................... TOXICOLOGICAL INFORMATION ..............................................................................

11.1 Toxicological Information
Acute toxicity: orl rat LD50 1500 mg/kg (RTECS)
Skin corrosion/irritation: No data available
Serious eye damage/irritation: ihl rat LC50 1974 mg/m³/4H (RTECS); Dilated pupils, Shortness of breath, Blood–other changes.
Respiratory irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

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Name: HFIP or 1,1,1,3,3,3-Hexafluoro-2-Propanol  

Carcinogenicity  
IARC: No data available  
NTP: No data available  
OSHA: No data available  
Reproductive toxicity: No data available  
STOT-single exposure: No data available  
STOT-repeated exposure: No data available  
Aspiration hazard: No data available  
RTECS Number: UB6450000

11.2 Further Information

Potential health effects
Eye: Causes serious eye damage – dilated pupils, destruction to mucous membranes,  
    burns, risk of blindness, lacrimation (tearing).
Skin: Causes severe skin burns.
Inhalation: Harmful if inhaled. May be destructive to mucous membranes and respiratory tract.  
    Symptoms: shortness of breath, difficulty breathing, dilated pupil.
Ingestion: Harmful if inhaled. May be destructive to mucous membranes of the GI system.  
    Symptoms: See above route. Pre-existing conditions that may be aggravated: not determined.
Miscellaneous: No data available

SECTION 12 ECOCLOGICAL INFORMATION

Ecotoxicity: Fish Toxicity: 244 mg/L 96 hours(s) LC50 (mortality) fathead minnow (Pimephales promelas)
Persistence and degradability: No data available
Bioaccumulative potential: Log Pow: 1.66  
    Bioaccumulation is not expected. (Lit)
Motility in soil: No data available
Other adverse effects: No data available
General Notes: Do not empty into drains or water courses.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Disposal methods
U . S. EPA Waste Codes: D002  
    Generator is responsible for proper waste characterization. NOTE: U . S. Federal  
    and state hazardous waste regulations may differ considerably.
Waste Disposal: That which cannot be recovered or recycled, should be disposed of in accordance with  
    all applicable international, national, regional, state, and local laws. Do NOT dump into  
    any sewer, on ground, or into any body of water.

SECTION 14 TRANSPORT INFORMATION

14.1 UN number: UN1760
14.2 UN proper shipping name: Corrosive Liquids, n.o.s. (1,1,1,3,3,3-Hexafluoro-2-propanol)
14.3 Transport Hazard Class: 8
14.5 Packing group: PG II
14.6 Environmental hazards: Not applicable
14.6 Special precautions for user: See Section 8 for exposure/personal protection guidance.

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and Environmental regulations specific for the product in question.

NFPA: H3 F0 R0  
HMIS: H3 F0 R0

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Name: HFIP or 1,1,1,3,3,3-Hexafluoro-2-Propanol  

15.2 Chemical Inventory Lists

Reviews, Standards, and Regulations

HFIP or 1,1,1,3,3,3-Hexafluoro-2-Propanol
CAS number: .................................................. 920-66-1
TSCA: ............................................................................. Y
This compound is sold strictly for FDA or research and development use.
EINECS: ............................................................................. Y
Number: ............................................................................. 213-059-4

CERCLA [Section 103 (40 CFR 302.4)] ............................................................................. NL
RQ (lbs) ............................................................................. NA
RCRA Waste Code ............................................................................. NA
TQ (lbs) ............................................................................. NA

Clean Air Act
[Section 112r (40 CFR 68)] ............................................................................. NL
TQ (lbs) ............................................................................. NA
Contains Ozone Depleters (Class I or Class II) ..................................................................... N

SARA Title III Notification [40 CFR 302.4]:
Section 302/304 (EHS) Ingredient
[40 CFR 355.3] ............................................................................. NL
TPQ (lbs) ............................................................................. NA
RQ (lbs) ............................................................................. NA

Section 313 Ingredient [40 CFR 372.65] ............................................................................. NL

SARA Hazards
Acute......Y  Chronic.... N  Fire .... N  Pressure.... N  Reactivity ....N

State Lists: ............................................................................. NL
States: ............................................................................. NL
On CA 65 Significant Risk Level: ............................................................................. NL

SECTION 16  OTHER INFORMATION

16.1 Full text of H-Statements referred to under Section 2 and 3.

Acute Tox.  Acute Toxicity
Eye Dam.  Serious eye damage
H302 + H332 Harmful if swallowed or if inhaled
H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage
Skin Corr.  Skin corrosion

The above information is believed to be correct to the best of our present state knowledge, but does not purport to be all-inclusive and shall be used only as a guide. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

Prepared by: Regis Technologies

This is the last page of this MSDS.