



8210 N. Austin Avenue, Morton Grove, IL 60053-3205, U.S.A.  
 847-967-6000 800-323-8144  
 (Monday - Friday: 7:30 a.m. - 4:00 p.m. CST)

**Emergency Contact:**  
 INFOTRAC 800-535-5053 [U.S.A.]

Name: HFBI or Heptafluorobutyrylimidazole  
 Code: 1-270006-500, 1-270611-200, 1-270611-500, 1-270612-200, 1-270613-200, 1-270614-200, 1-270615-200

**SAFETY DATA SHEET**

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

- 1.1 Product Identifier
  - Name HFBI or Heptafluorobutyrylimidazole
  - Code 1-270006-500, 1-270611-200, 1-270611-500, 1-270612-200, 1-270613-200, 1-270614-200, 1-270615-200
- 1.2 Use of Substance/Mixture
  - Use Analytical Reagent—GC Derivatization; acylation reagent
- 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
  - OSHA Hazards Combustible liquid.
  - Hazard Indication (67/548/EEC or 1999/45/EC)
    - Symbol(s) Xi Irritant
    - R-Phrase(s) R36/37/39 Irritating to eyes, respiratory system and skin.

GHS Classification

Physical Hazards	Flammable Liquid	Category 4	H227
Health Hazards	Skin Corrosion / Irritation	Category 2	H315
	Serious Eye Damage / Irritation	Category 2	H319

Environmental Hazards - Not classified

GHS Label Elements  
 Pictograms or hazard symbols



GHS07

Signal Word Warning

Hazard Statement

H227	Combustible liquid.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

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**Precautionary Statements**

- [Prevention] P210 – Keep away from heat and hot surfaces.  
 P264 – Wash thoroughly after handling..  
 P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- [Response] P302+P352 – IF ON SKIN: Wash with plenty of soap and water.  
 P332+P313 – If skin irritation occurs: Get medical advice/attention.  
 P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P362-Take off contaminated clothing and wash before reuse.  
 P403+P235-Store in a well-ventilated place. Keep cool.  
 P337+P313 – If eye irritation persists: Get medical advice/attention.

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

Name	HFBI or Heptafluorobutyrylimidazole in water [Ion-Pair Chromatography Reagent]		
Synonyms	HFBI; 1-(2,2,3,3,4,4,4-Heptafluoro-1-oxobutyl)-1H-imidazole; 1-(Heptafluorobutyryl)imidazole; 1-(Heptafluorobutyryl)imidazole; N-(Heptafluorobutyryl)imidazole		
CAS No.	32477-35-3		
EINECS No.	251-063-8		
Ingredients:		Concentration (%/wt)	
	HFBI (32477-35-3) .....	NLT	99.0 %
	Manufacturing Impurities .....	NMT	1.0 %

**SECTION 4 FIRST AID MEASURES**

- 4.1 Description of first aid measures
  - General: Do not attempt to neutralize as it frequently makes matters worse.
  - 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.
  - Physician note: Symptomatic and supportive care. There is no specific antidote.
- 4.2 Most important symptoms and effects, both acute and delayed.
  - Eyes-may cause mild to severe irritation on contact. May be irritating to skin. May be irritating to mucous membranes, if mists are inhaled. May be harmful if ingested.
- 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, dry sand, foam. DO NOT USE WATER.
  - Water may be effective for cooling, but may not effect extinguishment for large fires.
- 5.2 Specific hazards arising from the chemical.
  - Combustible liquid.
  - On contact with water, readily hydrolyzes to produce corrosive heptafluorobutyric acid and imidazole.
  - Containers may build pressure or rupture when heated. Container explosion may occur under fire conditions
  - Avoid inhalation of material or combustion by-products.
  - Emits toxic fumes under fire conditions: May emit carbon oxides, nitrogen oxides, hydrogen fluoride

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..... **SAFETY DATA SHEET** .....

5.3 Advice for fire-fighters  
 Wear protective clothing to prevent contact with skin, eyes, and inhalation.

**SECTION 6 ..... ACCIDENTAL RELEASE MEASURES.....**

- 6.1 Personal precautions, protective equipment, and emergency procedures  
 For non-emergency personnel - Avoid material contact or inhalation of mists. Evacuate unnecessary personnel from area.  
 For emergency responders – Wear protective clothing to prevent contact with skin and eyes. Avoid breathing mists. See Section 8.3.
- 6.2 Environmental precautions  
 Prevent material from entering drains.
- 6.3 Methods of clean up  
 Eliminate all ignition sources. Use spark proof tools.  
 Ventilate area. Isolate spilled material.  
 Keep away from water. On contact with water, readily hydrolyzes to produce corrosive heptafluorobutyric acid and imidazole.  
 Wear NIOSH/MSHA approved respirator for organic/acid/amine gas, dust, and mists to prevent inhalation.  
 Contain and recover material when possible. Neutralize with soda ash or sodium bicarbonate.  
 Absorb using chemically compatible spill pillows, or similar adsorbent material.  
 Sweep up, if not absorbed in pillow, 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 mists.  
 May be irritating to skin or eyes. May be irritating to mucous membranes, if mists are inhaled. May be harmful if ingested.  
 Wash after handling.  
 Immediately remove contaminated clothing, as material **may be highly irritating or corrosive to skin**  
 Wash contaminated clothing prior to reuse. Dispose of contaminated footwear.  
 Keep away from water. On contact with water, readily hydrolyzes to produce corrosive heptafluorobutyric acid and imidazole.
- 7.2 Storage Conditions  
 Store tightly closed under nitrogen, in a cool, dry place with adequate ventilation, in a storage area suitable for combustibles.  
 Protect from light and heat. May be stored refrigerated.  
 Store away from incompatible materials (See Section 10.).

**SECTION 8 ..... EXPOSURE CONTROLS / PERSONAL PROTECTION.....**

- 8.1 Control parameters  
 Exposure limits: HFBI or Heptafluorobutyrylimidazole (32477-35-3) –  
 OSHA – PEL or ACGIH – TLV No limits established.  
 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.  
 Respiratory If exposure to mists likely: NIOSH/MSHA approved respirator for organic vapor and mists.  
 Dermal (not hand) Protective Clothing (e.g., lab coat)  
 Hygiene Avoid inhalation, ingestion; contact with eyes, skin, and clothing; Avoid prolonged or repeated exposure.  
 Wash thoroughly after handling.

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**SECTION 9 ..... PHYSICAL AND CHEMICAL PROPERTIES .....**

9.1 Information on physical and chemical data

Chemical Formula	C <sub>7</sub> H <sub>3</sub> F <sub>7</sub> N <sub>2</sub> O	
Molecular Weight	264.10	
Form	liquid	
Appearance	clear colorless solution	
Odor	Not available	
Odor threshold	Not available	
pH	Not available	
Melting/freezing point	Not available	
Boiling point:	56-58°C (132-136°F) (12 mmHg)	
Flammability (liquid)		
Flash Point	171°F (77°C)	Method: tcc
Flammable limits (%v/v)	UEL (upper explosive limit)	Not available
	LEL (lower explosive limit)	Not available
Autoignition temperature	Not available	
Decomposition temperature	Not available	
OSHA Flammability Class	IIIA	
Evaporation Rate (BuAc = 1.0)	1.0	
Vapor pressure (mmHg)	Not available	
Vapor density (air=1):	Not available	
Relative density (g/cm <sup>3</sup> )	1.5625	
Water Solubility	See water reactivity.	
Water reactive	Yes. Readily hydrolyzes to produce corrosive heptafluorobutyric acid and imidazole.	
Solubility (other)	Not available	
Partition coefficient: N-octanol/water	Kow (Pow) = Not available	
Viscosity	Not available	
Refractive Index (n <sub>D</sub> <sup>20</sup> )	1.3860	

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

- 10.1 Reactivity
  - Stable.
- 10.2 Chemical Stability
  - Stable if stored under nitrogen and protected from moisture, heat and light.
- 10.3 Possibility of hazardous reactions
  - Water, moisture, or humid air—reactive—readily hydrolyzes to corrosive hexamethylbutyric acid and imidazole.
  - Combustible liquid—protect from heat and ignition sources.
- 10.4 Conditions to avoid
  - Avoid incompatibilities.
  - Protect from static, heat, flames, sparks, and ignition sources.
  - Keep out of water supplies and sewers.
- 10.5 Incompatible materials
  - Heat, Light
  - Metals
  - Strong oxidizers, strong acids
  - Water, moisture, or humid air—reactive—readily hydrolyzes to corrosive hexamethylbutyric acid and imidazole.
  - Reagent darkens after prolonged exposure to sunlight without significant loss of activity.
- 10.6 Hazardous decomposition products
  - Combustion            carbon oxides, nitrogen oxides, hydrogen fluoride

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**SECTION 11 TOXICOLOGICAL INFORMATION**

11.1 Toxicological Information

Acute toxicity	Oral LD50	No data available
	Inhalation LC50	No data available
	Dermal LD50	No data available
	Other acute toxicity	No data available
Skin corrosion/irritation	No data available	
Serious eye damage/irritation	No data available	
Respiratory irritation	No data available	
Respiratory or skin sensitization	No data available	
Germ cell mutagenicity	No data available	
Carcinogenicity		
IARC	No data available.	
NTP	No data available	
OSHA	No data available	
Reproductive toxicity (Including teratogenicity)	No data available	
Specific target organ toxicity (STOT)		
STOT-single exposure	No data available	
STOT-repeated exposure	No data available	
Aspiration hazard	No data available	
RTECS Number	Not available	

11.2 Further Information

Potential health effects	
Eye	Can cause serious irritation.
Skin	Can cause irritation.
Inhalation	May be irritating to mucous membranes and respiratory tract.
Ingestion	May be harmful.
Symptoms	See above route. Pre-existing conditions that may be aggravated: not determined.
Miscellaneous	No data available.

**SECTION 12 ECOLOGICAL INFORMATION**

12.1 Ecotoxicity	No data available for this product.
12.2 Persistence and degradability	Limited data available for this product. Biodegradability – aerobic – Material readily hydrolyzes on contact with water to produce corrosive heptafluorobutyric acid (375-22-4) and imidazole (288-32-4). Imidazole: Biodegradability - aerobic; Result: 86 %, Readily biodegradable.
12.3 Bioaccumulative potential	BCF = No data available for this product. Heptafluorobutyric acid: Log Pow 2.4 (log Pow within 1-3; no remarkable bioaccumulation expected.) Imidazole: Log Pow = -0.02 at 25C (77F); no considerable bioaccumulation
12.4 Motility in soil	Log Kow = No data available for this product.
12.5 Other adverse effects	No data available for this product.

**SECTION 13 DISPOSAL CONSIDERATIONS**

13.1 Disposal methods	
U . S. EPA Waste Codes	None
Waste Characterization (per U. S. regulations)	RCRA Hazard Class (40CFR 261): none 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.

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**SECTION 14 TRANSPORT INFORMATION**

- 14.1 UN number Not applicable. Not regulated—Not a dangerous goods.
- 14.2 UN proper shipping name Not applicable.
- 14.3 Transport Hazard Class Not applicable.
- 14.5 Packing group Not applicable.
- 14.6 Environmental hazards Not applicable
- 14.6 Special precautions for user See Section 8 for exposure/personal protection guidance.  
 NA Emergency Guidebook Number: Not applicable.

**SECTION 15 REGULATORY INFORMATION**

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

OSHA Health: Irritant Physical: Flammable Liquid  
 NFPA: H2 F2 R1 W (avoid water) HMIS: H2 F2 R1

15.2 Chemical Inventory Lists

.....HFBI or Heptafluorobutyrylimidazole  
 CAS Number..... 32477-35-3  
 TSCA: ..... Y  
 EINECS:..... Y  
 Number.....251-063-8  
 CERCLA [Section 103 (40 CFR 302.4)]:..... NL  
 RQ (lbs) ..... NA  
 RCRA Waste Code..... NL  
 OSHA Process Safety [29 CFR 1910.119]: ..... NL  
 TQ (lbs)..... NA  
 Clean Air Act  
 [Section 112r (40 CFR 68)]:..... NL  
 TQ (lbs)..... NA  
 Contains Ozone Depleters (Class I or Class II) ..... N  
 [Section 103 (40 CFR 302.4)]:..... NL  
 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.... N 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 Literature References

None.

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.

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