**Section 1 - IDENTIFICATION**

**Manufacturer Information**
Electronic Fluorocarbons LLC  
3266 Bergey Road  
Hatfield PA 19440  
General Information: 1-215-443-9600  
Emergency #: 1-800-535-5053  
Outside the US: +1-352-323-3500 (Call collect)

**Product Identifier:** Hexafluoro-1,3-butadiene

**Trade Names/Synonyms**
1,1,2,3,4,4,-HEXAFLUOROBUTA-1,3-DIENE; HEXAFLUOROBUTA-1,3-DIENE; HEXAFLUOROBUTADIENE-1,3; PERFLUORO-1,3-BUTADIENE; PERFLUOROBUTA-1,3-DIENE; PERFLUOROBUTADIENE-1,3; PERFLUOROBUTADIENE

**Chemical Family**
aliphatic, halogenated hydrocarbons

**Product Use**
industrial

**Restrictions on Use**
None known.

**Section 2 - HAZARDS IDENTIFICATION**

**GHS Classification**
Flammable Gases, Category 1  
Gas under pressure, Liquefied gas  
Acute Toxicity (Inhalation), Category 3

**GHS LABEL ELEMENTS**

**Symbol(s)**

**Signal Word**
DANGER

**Hazard Statement(s)**
Extremely flammable gas  
Contains gas under pressure; may explode if heated  
Toxic if inhaled

**Precautionary Statement(s)**

**Prevention**
Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Avoid breathing gas. Use only outdoors or in a well-ventilated area.
Safety Data Sheet

Material Name: Hexafluoro-1,3-butadiene

Response
Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.

Storage
Store in a well-ventilated place. Store locked up. Keep container tightly closed. Protect from sunlight.

Disposal
Dispose of in accordance with applications with applicable regulations.

Other Hazards which do not Result in Classification
May cause asphyxia. May cause frostbite upon sudden release of compressed gas.

** Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS **

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Component</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>685-63-2</td>
<td>HEXAFLUORO-1,3-BUTADIENE</td>
<td>100</td>
</tr>
</tbody>
</table>

** Section 4 - FIRST AID MEASURES **

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin
If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Eyes
Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion
If a large amount is swallowed, get medical attention.

Note to Physicians
Avoid adrenaline or other stimulants.

Symptoms: Immediate
frostbite, suffocation

Symptoms: Delayed
No information on significant adverse effects.

** Section 5 - FIRE FIGHTING MEASURES **

See Section 9 for Flammability Properties

Specific Hazards Arising from the Chemical
Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Containers may rupture or explode if exposed to heat.

Extinguishing Media
alcohol-resistant foam, carbon dioxide, regular dry chemical, water
Large fires: Use regular foam or flood with fine water spray.

Unsuitable Extinguishing Media
None known.

Protective Equipment and Precautions for Firefighters
Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.
Safety Data Sheet

Material Name: Hexafluoro-1,3-butadiene

Fire Fighting Measures
Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. For tank, rail car or tank truck: Let burn unless leak can be stopped immediately. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Hazardous Combustion Products
Combustion: carbonyl fluoride, fluorinated compounds, hydrogen fluoride, oxides of carbon

**Section 6 - ACCIDENTAL RELEASE MEASURES**

Personal Precautions
Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions
Avoid release to the environment.

Methods for Containment
Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.

Cleanup Methods
Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Stop leak if possible without personal risk. Avoid heat, flames, sparks and other sources of ignition. Reduce vapors with water spray.

**Section 7 - HANDLING AND STORAGE**

Handling Procedures
Wash thoroughly after handling.

Storage Procedures

Incompatibilities alkali metals, combustible materials, metals, oxidizing materials

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

Component Exposure Limits
ACGIH, EU, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

Component Biological Limit Values
There are no biological limit values for any of this product's components.

Engineering Controls
Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
Eyes/Face
Wear splash resistant safety goggles with a faceshield. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Protective Clothing
For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing.

Glove Recommendations
For the gas: Wear appropriate chemical resistant gloves. For the liquid: Wear insulated gloves.

Protective Materials
leather, rubber

Respiratory Protection
Under conditions of frequent use or heavy exposure, respiratory protection may be needed.
Respiratory protection is ranked in order from minimum to maximum.
Consider warning properties before use.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

** *Section 9 - PHYSICAL AND CHEMICAL PROPERTIES* * **

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Gas</th>
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<tbody>
<tr>
<td>Color:</td>
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<tr>
<td>Odor:</td>
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<td>pH:</td>
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<td>Decomposition:</td>
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<td>Melting/Freezing Point:</td>
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<td>Flash Point:</td>
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<tr>
<td>Vapor Density (air = 1):</td>
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<td>Coeff. Water/Oil Dist:</td>
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<td>Viscosity:</td>
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<td>Molecular Formula:</td>
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</table>

** *Section 10 - STABILITY AND REACTIVITY* * **

Chemical Stability
Stable at normal temperatures and pressure.

Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers. Avoid contact with combustible materials.

Possibility of Hazardous Reactions
Will not polymerize.

Incompatible Materials
alkali metals, combustible materials, metals, oxidizing materials

Hazardous Decomposition
Combustion: carbonyl fluoride, fluorinated compounds, hydrogen fluoride, oxides of carbon
**Section 11 - TOXICOLOGICAL INFORMATION**

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
- The components of this material have been reviewed in various sources and no selected endpoints have been identified.

RTECS Acute Toxicity (selected)
- The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Acute Toxicity Level
- HEXAFLUORO-1,3-BUTADIENE (685-63-2)
  - Toxic: inhalation

Immediate Effects
- frostbite, suffocation

Delayed Effects
- No information on significant adverse effects.

Irritation/Corrosivity Data
- No animal testing data available for skin or eyes.

RTECS Irritation
- The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Respiratory Sensitizer
- No data available.

Dermal Sensitizer
- No data available.

Carcinogenicity

Component Carcinogenicity
- None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Mutagenic Data
- No data available.

RTECS Mutagenic
- The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data
- No data available.

Tumorigenic Data
- No data available.

RTECS Tumorigenic
- The components of this material have been reviewed, and RTECS publishes data for one or more components.

Specific Target Organ Toxicity - Single Exposure
- No data available.

Specific Target Organ Toxicity - Repeated Exposure
- No data available.

Aspiration Hazard
- Not applicable.

Medical Conditions Aggravated by Exposure
- heart disorders, nervous system disorders, skin disorders, respiratory disorders, kidney disorders
* **Section 12 - ECOLOGICAL INFORMATION** *

**Component Analysis - Aquatic Toxicity**
No LOLI ecotoxicity data are available for this product's components.

**Persistence and Degradability**
No data available.

**Bioaccumulative Potential**
No data available.

**Mobility in Environmental Media**
No data available.

* **Section 13 - DISPOSAL CONSIDERATIONS** *

**Disposal Methods**
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

**Component Waste Numbers**
The U.S. EPA has not published waste numbers for this product's components.

* **Section 14 - TRANSPORT INFORMATION** *

**US DOT Information**
- **Shipping Name**: Liquefied gas, toxic, flammable, n.o.s. (Contains: HEXAFLUORO-1,3-BUTADIENE)
- **UN/NA #**: UN3160  **Hazard Class**: 2.3
- **Required Label(s)**: 2.3, 2.1
- **Additional Info.**: Inhalation Hazard Zone C

**IMDG Information**
- **Shipping Name**: Liquefied gas, toxic, flammable, n.o.s. (Contains: HEXAFLUORO-1,3-BUTADIENE)
- **UN #**: UN3160  **Hazard Class**: 2.3
- **Required Label(s)**: 2.1

* **Section 15 - REGULATORY INFORMATION** *

**Component Analysis**

**U.S. Federal Regulations**
None of this product’s components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

**SARA 311/312 Hazardous Categories**

- **Acute Health**: Yes  **Chronic Health**: No  **Fire**: Yes  **Pressure**: Yes  **Reactive**: No

**U.S. State Regulations**
None of this product’s components are listed on the state lists from CA, MA, MN, NJ or PA.

Not regulated under California Proposition 65

**Component Analysis - Inventory**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>US</th>
<th>CA</th>
<th>EU</th>
<th>AU</th>
<th>PH</th>
<th>JP</th>
<th>KR</th>
<th>CN</th>
<th>NZ</th>
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</thead>
<tbody>
<tr>
<td>HEXAFLUORO-1,3-BUTADIENE</td>
<td>685-63-2</td>
<td>Yes</td>
<td>NSL</td>
<td>EIN</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Safety Data Sheet

Material Name: Hexafluoro-1,3-butadiene

** *Section 16 - OTHER INFORMATION* * **

NFPA Ratings: Health: 3 Fire: 4 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information
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