**Section 1 - IDENTIFICATION**

**Product Identifier:** HEXAFLUOROETHANE

**Trade Names/Synonyms**
- MTG MSDS 46: F 116; FREON 116; PERFLUOROETHANE; R 116; REFRIGERANT 116; UN 2193; FREON-116 PERFLUOROETHANE-AIRCO (AIRCO); HEXAFLUOROETHANE-MATHESON (MATHESON GAS PRODUCTS); C2F6; HALOCARBON 116

**Chemical Family**
- halogenated, aliphatic

**Recommended Use**
- Industrial and Specialty Gas Applications

**Restrictions on Use**
- None known.

**Manufacturer Information**

MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920

General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

**Section 2 - HAZARDS IDENTIFICATION**

**Classification in accordance with 29 CFR 1910.1200**
- Gas under pressure, Liquefied gas

**GHS LABEL ELEMENTS**

**Symbol(s)**

**Signal Word**
- WARNING

**Hazard Statement(s)**
- Contains gas under pressure; may explode if heated.
- May displace oxygen and cause rapid suffocation.

**Precautionary Statement(s)**

**Prevention**
- None needed according to classification criteria.

**Response**
- None needed according to classification criteria.

**Storage**
- Protect from sunlight. Store in a well-ventilated place.
Disposal
Dispose in accordance with all applicable regulations.

Potential Environmental Effects
May cause frostbite upon sudden release of liquefied gas. May cause asphyxia.

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

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>76-16-4</td>
<td>HEXAFLUOROETHANE</td>
<td>100</td>
</tr>
</tbody>
</table>

** Section 4 - FIRST AID MEASURES **

Description of Necessary 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
Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion
If swallowed, get medical attention.

Most Important Symptoms/Effects

Acute
frostbite, suffocation

Delayed
No information on significant adverse effects.

Indication of Immediate Medical Attention and Special Treatment

For inhalation, consider oxygen.

** Section 5 - FIRE FIGHTING MEASURES **

Suitable Extinguishing Media
regular dry chemical, carbon dioxide
Large fires: Use water spray, fog or regular foam.

Unsuitable Extinguishing Media
Do not direct water at source of leak or safety devices; icing may occur.

Specific Hazards Arising from the Chemical
Negligible fire hazard. Containers may rupture or explode if exposed to heat.

Hazardous Combustion Products
Combustion: oxides of carbon, hydrofluoric acid, fluoride gases
Safety Data Sheet

Material Name HEXAFLUOROETHANE

Fire Fighting Measures
Move container from fire area if it can be done without risk. Damaged cylinders should be handled only by specialists. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with water spray until well after the fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

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

**Section 6 - ACCIDENTAL RELEASE MEASURES**

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up
Do not touch or walk through spilled material. Stop leak if possible without personal risk. Do not direct water at spill or source of leak. Keep unnecessary people away, isolate hazard area and deny entry. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. If possible, turn leaking containers so that gas escapes rather than liquid. Prevent entry into waterways, sewers, basements, or confined areas. Allow substance to evaporate. Ventilate the area. Stay upwind and keep out of low areas.

**Section 7 - HANDLING AND STORAGE**

Precautions for Safe Handling
Observe good hygiene and safety practices when handling this product. Wear appropriate chemical resistant clothing. Wash thoroughly after handling.

Conditions for Safe Storage, including any Incompatibilities

Incompatibilities reactive metals

**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.

Appropriate Engineering Controls
Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment
Eyes/Face Protection
Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.
Safety Data Sheet

Material Name HEXAFLUOROETHANE

Glove Recommendations
Wear insulated gloves.

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>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Gas</td>
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<td>Color</td>
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</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Taste</td>
<td>tasteless</td>
</tr>
<tr>
<td>Melting/Freezing Point</td>
<td>-94 °C</td>
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<td>Flash Point</td>
<td>Not flammable</td>
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<td>Evaporation Rate</td>
<td>Not available</td>
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<tr>
<td>UEL</td>
<td>Not available</td>
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<tr>
<td>Vapor Density (air = 1)</td>
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<td>Viscosity</td>
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<td>Physical Form</td>
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<tr>
<td>Density</td>
<td>5.734 g/L @ 24 °C</td>
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<tr>
<td>Log KOW</td>
<td>2.0</td>
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<tr>
<td>Auto Ignition</td>
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<tr>
<td>Molecular Weight</td>
<td>138.01</td>
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</table>

Other Property Information
No additional information is available.

Solvent Solubility
Slightly Soluble: alcohol

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

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.

Conditions to Avoid
Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Incompatible Materials
reactive metals

Hazardous Decomposition
Combustion: oxides of carbon, hydrofluoric acid, fluoride gases
**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.

**Information on Likely Routes of Exposure**

**Inhalation**

nausea, vomiting, dizziness, drowsiness, headache, loss of coordination, disorientation, tingling sensation, suffocation, convulsions, coma

**Ingestion**

frostbite

**Skin Contact**

blisters, frostbite

**Eye Contact**

frostbite, blurred vision

**Immediate Effects**

frostbite, suffocation

**Delayed Effects**

No information on significant adverse effects.

**Medical Conditions Aggravated by Exposure**

No data available.

**Irritation/Corrosivity Data**

No data available.

**RTECS Irritation**

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

**Respiratory Sensitization**

No data available.

**Dermal Sensitization**

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.

**Reproductive Effects Data**

No data available.

**Tumorigenic Data**

No data available.

**Specific Target Organ Toxicity - Single Exposure**

No data available.

**Specific Target Organ Toxicity - Repeated Exposure**

No data available.
Safety Data Sheet

Material Name: HEXAFLUOROETHANE
SDS ID: MAT10860

Aspiration Hazard
Not applicable.

***Section 12 - ECOLOGICAL INFORMATION***

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

Persistence and Degradability
Not expected to undergo hydrolysis in the environment.

Bioaccumulative Potential
Bioconcentration potential in aquatic organisms is low based on BCF value of 10.

Mobility
Expected to have moderate mobility in soil.

***Section 13 - DISPOSAL CONSIDERATIONS***

Disposal Methods
Dispose in accordance with all applicable regulations.

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: Hexafluoroethane
- UN/NA #: UN2193 Hazard Class: 2.2
- Required Label(s): 2.2

IMDG Information
- Shipping Name: Hexafluoroethane
- UN #: UN2193 Hazard Class: 2.2
- Required Label(s): 2.2

***Section 15 - REGULATORY INFORMATION***

Component Analysis

U.S. Federal Regulations
None of this products 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: No  Pressure: Yes  Reactive: No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEXAFLUOROETHANE</td>
<td>76-16-4</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

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>HEXAFLUOROETHANE</td>
<td>76-16-4</td>
<td>Yes</td>
<td>DSL</td>
<td>EIN</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Section 16 - OTHER INFORMATION**

**NFPA Ratings:**
- **Health:** 3 Fire: 0 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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End of Sheet MAT10860