

# MATERIAL SAFETY DATA SHEET

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## SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**MATHESON TRI-GAS, INC.**  
**959 ROUTE 46 EAST**  
**PARSIPPANY, NEW JERSEY 07054-0624**

**EMERGENCY CONTACT:**  
**CHEMTREC 1-800-424-9300**  
**INFORMATION CONTACT:**  
**973-257-1100**

**SUBSTANCE: LIQUID HELIUM**

**TRADE NAMES/SYNONYMS:**  
HELIUM; 00227491; RTECS MH6520000

**CHEMICAL FAMILY:** inorganic, gas

**CREATION DATE:** Dec 13 2001

**REVISION DATE:** Dec 16 2002

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## SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** LIQUID HELIUM  
**CAS NUMBER:** 7440-59-7  
**PERCENTAGE:** 100

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## SECTION 3 HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=1 FIRE=0 REACTIVITY=0



**EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** liquefied gas

**ODOR:** odorless

**MAJOR HEALTH HAZARDS:** difficulty breathing

**PHYSICAL HAZARDS:** Containers may rupture or explode if exposed to heat.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** changes in body temperature, nausea, vomiting, difficulty breathing, irregular heartbeat, headache, fatigue, dizziness, disorientation, emotional disturbances, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma

**LONG TERM EXPOSURE:** no information on significant adverse effects

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** blisters, frostbite

**LONG TERM EXPOSURE:** no information is available

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** frostbite, blurred vision

**LONG TERM EXPOSURE:** no information is available

**INGESTION:**

**SHORT TERM EXPOSURE:** ingestion of harmful amounts is unlikely

**LONG TERM EXPOSURE:** ingestion of harmful amounts is unlikely

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## SECTION 4 FIRST AID MEASURES

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**INHALATION:** If adverse effects occur, remove to uncontaminated area. Get medical attention.

**SKIN CONTACT:** 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.

**EYE CONTACT:** Contact with liquid: Immediately 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 PHYSICIAN:** For inhalation, consider oxygen.

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## SECTION 5 FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Negligible fire hazard. Containers may rupture or explode if exposed to heat.

**EXTINGUISHING MEDIA:** Use extinguishing agents appropriate for surrounding fire.

**FIRE FIGHTING:** 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 tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Do not get water directly on material. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

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## SECTION 6 ACCIDENTAL RELEASE MEASURES

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**OCCUPATIONAL RELEASE:**

Do not touch spilled material. Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.

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## SECTION 7 HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. Avoid direct sunlight. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

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## SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **LIQUID HELIUM:**

#### **HELIUM:**

ACGIH (simple asphyxiant)

**VENTILATION:** Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** 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 full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

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## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** gas

**COLOR:** colorless

**PHYSICAL FORM:** liquefied gas

**ODOR:** odorless

**TASTE:** tasteless

**MOLECULAR WEIGHT:** 4.0026

**MOLECULAR FORMULA:** He

**BOILING POINT:** -452 to -452.0 F (-269 to -268.9 C) @ 1 atm

**FREEZING POINT:** -458.0 to -458 F (-272.2 to -272 C) @ 25-26 atm

**VAPOR PRESSURE:** Not available

**VAPOR DENSITY (air=1):** 0.14

**SPECIFIC GRAVITY:** Not applicable

**DENSITY:** 0.147 g/L @ -270.8 C

**BULK DENSITY:** 0.1785 g/L @ 0 C

**WATER SOLUBILITY:** very slightly soluble

**PH:** Not applicable

**VOLATILITY:** Not applicable

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** Not applicable

**VISCOSITY:** 0.01991 cP @ 27 C

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not applicable

**SOLVENT SOLUBILITY:**

**Insoluble:** alcohol

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## SECTION 10 STABILITY AND REACTIVITY

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**REACTIVITY:** Stable at normal temperatures and pressure.

**CONDITIONS TO AVOID:** Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture.

**INCOMPATIBILITIES:** No data available.

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: miscellaneous decomposition products

**POLYMERIZATION:** Will not polymerize.

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## SECTION 11 TOXICOLOGICAL INFORMATION

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Not available

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## SECTION 12 ECOLOGICAL INFORMATION

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Not available

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## SECTION 13 DISPOSAL CONSIDERATIONS

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Dispose in accordance with all applicable regulations.

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## SECTION 14 TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Helium, refrigerated liquid (cryogenic liquid)

**ID NUMBER:** UN1963

**HAZARD CLASS OR DIVISION:** 2.2

**LABELING REQUIREMENTS:** 2.2



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Helium, refrigerated liquid

**ID NUMBER:** UN1963

**CLASSIFICATION:** 2.2

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## SECTION 15 REGULATORY INFORMATION

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**U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):** Not regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):**

ACUTE: Yes

CHRONIC: No

FIRE: No

REACTIVE: No

SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):** Not regulated.

**OSHA PROCESS SAFETY (29CFR1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** A.

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** Not determined.

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**SECTION 16 OTHER INFORMATION**

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**MSDS SUMMARY OF CHANGES**

SECTION 15 REGULATORY INFORMATION

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