SULFUR TETRAFLUORIDE - MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Matheson Tri-Gas, Inc.

The telephone numbers listed below are emergency numbers, please contact your local branch for routine inquiries.

USA
959 Route 46 East
Parsippany, New Jersey
07054-0624 USA
Phone: 973-257-1100

CANADA
530 Watson Street
Whitby, Ontario
L1N 5R9 Canada
Phone: 905-668-3570

SUBSTANCE: SULFUR TETRAFLUORIDE
SYMBOL: SF₄

TRADE NAMES/SYNONYMS: (T-4)-SULFUR FLUORIDE (SF₄); SULFUR FLUORIDE (SF₄); TETRAFLUOROSULFURANE; UN 2418; MAT22330; RTECS WT4800000

CHEMICAL FAMILY: halogens

CREATION DATE: Jan 24 1989
REVISION DATE: Mar 16 1999

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: SULFUR TETRAFLUORIDE

CAS NUMBER: 7783-60-0
EC NUMBER (EINECS): 232-013-4
PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3  FIRE=0  REACTIVITY=0

WHMIS CLASSIFICATION: AD1EF

EC CLASSIFICATION (CALCULATED):
C Corrosive
R 34

EMERGENCY OVERVIEW:

Color: colorless
Physical Form: gas

Major Health Hazards: potentially fatal if inhaled, respiratory irritation (possibly severe), skin irritation (possibly severe), eye irritation (possibly severe)
Physical Hazards: Containers may rupture or explode if exposed to heat.

POTENTIAL HEALTH EFFECTS:

INHALATION:
- **Short Term Exposure**: irritation (possibly severe), lung congestion, death
- **Long Term Exposure**: difficulty breathing, lung damage

SKIN CONTACT:
- **Short Term Exposure**: irritation (possibly severe), frostbite
- **Long Term Exposure**: same as effects reported in short term exposure

EYE CONTACT:
- **Short Term Exposure**: irritation (possibly severe)
- **Long Term Exposure**: same as effects reported in short term exposure

INGESTION:
- **Short Term Exposure**: no information on significant adverse effects
- **Long Term Exposure**: no information on significant adverse effects

CARCINOGEN STATUS:
- OSHA: N
- NTP: N
- IARC: N

4. FIRST AID MEASURES

INHALATION:
Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.

SKIN CONTACT:
Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). For burns, cover affected area securely with sterile, dry, loose-fitting dressing. Get medical attention immediately.

EYE CONTACT:
Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains. Continue irrigating with normal saline until ready to transport to hospital. Cover with sterile bandages. Get medical attention immediately.

INGESTION:
It is unlikely that emergency treatment will be required. Get medical attention, if needed.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS:
Negligible fire hazard.

EXTINGUISHING MEDIA:
carbon dioxide, regular dry chemical
Large fires: Use regular foam or flood with fine water spray.

**FIRE FIGHTING:**
Do not get water inside container. 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. Keep unnecessary people away, isolate hazard area and deny entry.

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**6. ACCIDENTAL RELEASE MEASURES**

**OCCUPATIONAL RELEASE:**
Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Do not get water inside container. Keep unnecessary people away, isolate hazard area and deny entry. Small spills: Flood with water. Large spills: Dike for later disposal. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. Reportable Quantity (RQ): Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

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**7. HANDLING AND STORAGE**
Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30).

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**8. EXPOSURE CONTROLS, PERSONAL PROTECTION**

**EXPOSURE LIMITS:**

**SULFUR TETRAFLUORIDE:**
0.1 ppm (0.4 mg/m³) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993)
0.1 ppm (0.4 mg/m³) ACGIH ceiling
0.1 ppm (0.4 mg/m³) NIOSH recommended ceiling

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

**EYE PROTECTION:** Wear splash resistant safety goggles with a faceshield. 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. Any supplied-air respirator with a full facepiece that is operated in a 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.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas

COLOR: colorless

ODOR: Not available

MOLECULAR WEIGHT: 108.06

MOLECULAR FORMULA: F4-S

BOILING POINT: -40 F (-40 C)

FREEZING POINT: -191 F (-124 C)

VAPOR PRESSURE: Not available

VAPOR DENSITY: Not available

SPECIFIC GRAVITY (water=1): 1.95 @ -78 C

WATER SOLUBILITY: reacts violently

PH: Not applicable

VOLATILITY: Not applicable

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not applicable

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

SOLVENT SOLUBILITY:
Soluble: benzene

10. STABILITY AND REACTIVITY

REACTIVITY:
Contact with water or moist air may form flammable and/or toxic gases or vapors.

CONDITIONS TO AVOID:
Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.
HAZARDOUS DECOMPOSITION:
Thermal decomposition products: acid halides, oxides of sulfur

POLYMERIZATION:
Will not polymerize.

11. TOXICOLOGICAL INFORMATION
SULFUR TETRAFLUORIDE:
LOCAL EFFECTS:
Corrosive: inhalation, skin, eye

ACUTE TOXICITY LEVEL:
Insufficient Data.

12. ECOLOGICAL INFORMATION
Not available

13. DISPOSAL CONSIDERATIONS
Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION
U.S. DOT 49 CFR 172.101. SHIPPING NAME-UN NUMBER; HAZARD CLASS;
PACKING GROUP; LABEL:
Sulfur tetrafluoride-UN2418; 2.3; Poison gas; Corrosive

15. REGULATORY INFORMATION
U.S. REGULATIONS:
TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CERCLA SECTION 103 (40CFR302.4): N

SARA SECTION 302 (40CFR355.30): Y
Sulfur Tetrafluoride: 100 LBS TPQ

SARA SECTION 304 (40CFR355.40): Y
Sulfur Tetrafluoride: 100 LBS RQ

SARA SECTION 313 (40CFR372.65): N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
ACUTE: Y
CHRONIC: N  
FIRE: N  
REACTIVE: N  
SUDDEN RELEASE: Y

Sulfur Tetrafluoride

STATE REGULATIONS:  
California Proposition 65: N

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 232-013-4

EC RISK AND SAFETY PHRASES:

<table>
<thead>
<tr>
<th>R34</th>
<th>Causes burns.</th>
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<tbody>
<tr>
<td>S2</td>
<td>Keep out of reach of children.</td>
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<tr>
<td>S20</td>
<td>When using do not eat or drink.</td>
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<tr>
<td>S24</td>
<td>Avoid contact with skin.</td>
</tr>
<tr>
<td>S25</td>
<td>Avoid contact with eyes.</td>
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<tr>
<td>S26</td>
<td>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</td>
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<tr>
<td>S27</td>
<td>Take off immediately all contaminated clothing.</td>
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<tr>
<td>S39</td>
<td>Wear eye/face protection.</td>
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<tr>
<td>S46</td>
<td>If swallowed, seek medical advice immediately and show this container or label.</td>
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16. OTHER INFORMATION  

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