



**MATHESON**

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## Safety Data Sheet

**Material Name: SULFUR TETRAFLUORIDE**

**SDS ID: MAT22330**

### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

**Material Name**

SULFUR TETRAFLUORIDE

**Synonyms**

MTG MSDS 82; SULFUR FLUORIDE (SF<sub>4</sub>); TETRAFLUOROSULFURANE; UN 2418

**Chemical Family**

halogens

**Product Use**

Industrial and Specialty Gas Applications.

**Restrictions on Use**

None known.

**Details of the supplier of the safety data sheet**

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 paragraph (d) of 29 CFR 1910.1200.**

Gases Under Pressure - Liquefied gas

Acute Toxicity - Inhalation - Gas - Category 1

Skin Corrosion/Irritation - Category 1

Serious Eye Damage/Eye Irritation - Category 1

Specific target organ toxicity - Single exposure - Category 1

Specific target organ toxicity - Repeated exposure - Category 1

Specific target organ toxicity - Repeated exposure - Category 2

**GHS Label Elements**

**Symbol(s)**



**Signal Word**

Danger

**Hazard Statement(s)**

Contains gas under pressure; may explode if heated.

Fatal if inhaled.

Causes severe skin burns and eye damage.

Causes damage to respiratory system.

Causes damage to organs through prolonged or repeated exposure. (respiratory system )

May cause damage to organs through prolonged or repeated exposure. (bones , teeth )

**Precautionary Statement(s)**

**Prevention**



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Do not breathe gas.

Use only outdoors or in a well-ventilated area.

In case of inadequate ventilation wear respiratory protection.

Do not eat, drink or smoke when using this product.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash thoroughly after handling.

**Response**

If exposed: Call a POISON CENTER or doctor/physician.

IF INHALED.

Remove person to fresh air and keep comfortable for breathing.

Immediately call a POISON CENTER or doctor/physician.

Specific treatment is urgent, see first aid section of Safety Data Sheet.

IF ON SKIN (or hair).

Take off immediately all contaminated clothing.

Rinse skin with water/shower.

Wash contaminated clothing before reuse.

Immediately call a POISON CENTER or doctor/physician.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor/physician.

**Storage**

Protect from sunlight. Store in a well-ventilated place.

Keep container tightly closed.

Store locked up.

**Disposal**

Dispose in accordance with all applicable regulations.

**Statement(s) of Unknown Acute Toxicity**

Inhalation 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

**Other Hazards**

May cause frostbite upon sudden release of liquefied gas.

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

CAS	Component Name	Percent
7783-60-0	Sulfur tetrafluoride	100

**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**

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes. 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.

**Eyes**



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Immediately flush eyes with plenty of water for at least 60 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

**Ingestion**

If swallowed, do not induce vomiting. Get immediate medical attention. Rinse mouth.

**Most Important Symptoms/Effects****Acute**

frostbite, respiratory tract burns, skin burns, eye burns, mucous membrane burns, respiratory system damage

**Delayed**

respiratory system damage, bone damage, tooth erosion

**Note to Physicians**

For inhalation, consider oxygen. Avoid gastric lavage or emesis.

### Section 5 - FIRE FIGHTING MEASURES

**Extinguishing Media****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.

**Special Hazards Arising from the Chemical**

Negligible fire hazard.

**Hazardous Combustion Products**

acid halides, oxides of sulfur, Hydrogen fluoride

**Fire Fighting Measures**

Do not get water inside container. Move container from fire area if it can be done without risk. 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. Damaged cylinders should be handled only by specialists. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Keep unnecessary people away, isolate hazard area and deny entry. 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. 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.

**Methods and Materials for Containment and Cleaning Up**

Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. 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. Do not touch or walk through spilled material. Keep unnecessary people away, isolate hazard area and deny entry. Flood with water. Dike for later disposal. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. 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).

**Environmental Precautions**

Avoid release to the environment.



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Do not breathe gas. Use only outdoors or in a well-ventilated area. In case of inadequate ventilation wear respiratory protection. Do not eat, drink or smoke when using this product. Wear protective gloves/clothing and eye/face protection. Wash hands thoroughly after handling. Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.

**Conditions for Safe Storage, Including any Incompatibilities**

Protect from sunlight. Store in a well-ventilated place.

Keep container tightly closed.

Store locked up.

Store and handle in accordance with all current regulations and standards. Protect from sunlight. Store in a well-ventilated area. Keep container tightly closed. Protect from physical damage. Avoid contact with water or moisture. Keep locked up. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. 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 Part B). Keep separated from incompatible substances.

**Incompatible Materials**

halogens, Glass

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION****Component Exposure Limits**

<b>Sulfur tetrafluoride</b>	<b>7783-60-0</b>
ACGIH:	2.5 mg/m3 TWA asF (related to Fluorides)
	0.1 ppm Ceiling
NIOSH:	0.1 ppm Ceiling ; 0.4 mg/m3 Ceiling
	250 mg/m3 IDLH asF (related to Fluorides)
OSHA (US):	2.5 mg/m3 TWA asF (related to Fluorides)
Mexico:	2.5 mg/m3 TWA VLE-PPT asF (related to Fluorides)
	0.1 ppm Ceiling ; 0.4 mg/m3 Ceiling

**ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)****Sulfur tetrafluoride (7783-60-0)**

2 mg/l Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific) ; 3 mg/l Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific) (related to Fluorides)

**Engineering Controls**

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

**Individual Protection Measures, such as Personal Protective Equipment****Eye/face protection**

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin Protection**

Wear appropriate chemical resistant clothing.



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**Material Name: SULFUR TETRAFLUORIDE****SDS ID: MAT22330****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. 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.

**Glove Recommendations**

Wear appropriate chemical resistant gloves.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	colorless gas	<b>Physical State</b>	gas
<b>Odor</b>	sulfur odor	<b>Color</b>	colorless
<b>Odor Threshold</b>	0.5 - 3 ppm	<b>pH</b>	Not available
<b>Melting Point</b>	-124 °C (-191 °F)	<b>Boiling Point</b>	-40 °C (-40 °F)
<b>Boiling Point Range</b>	Not available	<b>Freezing point</b>	Not available
<b>Evaporation Rate</b>	Not available	<b>Flammability (solid, gas)</b>	Not flammable
<b>Autoignition Temperature</b>	Not available	<b>Flash Point</b>	(Not flammable)
<b>Lower Explosive Limit</b>	Not available	<b>Decomposition temperature</b>	Not available
<b>Upper Explosive Limit</b>	Not available	<b>Vapor Pressure</b>	10.53 Atm @ 21.1 °C
<b>Vapor Density (air=1)</b>	3.78	<b>Specific Gravity (water=1)</b>	1.95 at -78 °C
<b>Water Solubility</b>	(Reacts violently)	<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Viscosity</b>	Not available	<b>Kinematic viscosity</b>	Not available
<b>Solubility (Other)</b>	Not available	<b>Density</b>	Not available
<b>Physical Form</b>	gas	<b>Molecular Formula</b>	F4-S
<b>Molecular Weight</b>	108.06	<b>Critical Temperature</b>	90.9 °C

**Solvent Solubility**

**Soluble**

Benzene

**Section 10 - STABILITY AND REACTIVITY****Chemical Stability**

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

**Possibility of Hazardous Reactions**

Will not polymerize.

**Conditions to Avoid**



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Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.

**Incompatible Materials**

halogens, Glass

**Hazardous decomposition products**

acid halides, oxides of sulfur, Hydrogen fluoride

**Water or Moisture**

Hydrogen fluoride

### Section 11 - TOXICOLOGICAL INFORMATION

**Information on Likely Routes of Exposure****Inhalation**

burns, lung congestion, death, difficulty breathing, lung damage

**Skin Contact**

burns, frostbite

**Eye Contact**

burns, frostbite

**Ingestion**

burns

**Acute and Chronic Toxicity****Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

**Sulfur tetrafluoride (7783-60-0)**

Inhalation LC50 Rat 19 ppm 4 h

**Product Toxicity Data****Acute Toxicity Estimate**

No data available.

**Immediate Effects**

frostbite, respiratory tract burns, skin burns, eye burns, mucous membrane burns, respiratory system damage

**Delayed Effects**

respiratory system damage, bone damage, tooth erosion

**Irritation/Corrosivity Data**

respiratory tract burns, skin burns, eye burns, mucous membrane burns

**Respiratory Sensitization**

No information available for the product.

**Dermal Sensitization**

No information available for the product.

**Component Carcinogenicity**

Sulfur tetrafluoride	7783-60-0
ACGIH:	A4 - Not Classifiable as a Human Carcinogen (related to Fluorides)

**Germ Cell Mutagenicity**

No data available.

**Tumorigenic Data**

No data available

**Reproductive Toxicity**

No data available.

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**Material Name: SULFUR TETRAFLUORIDE****SDS ID: MAT22330****Specific Target Organ Toxicity - Single Exposure**

Respiratory system

**Specific Target Organ Toxicity - Repeated Exposure**

Respiratory system, bones, teeth

**Aspiration hazard**

Not applicable.

**Medical Conditions Aggravated by Exposure**

No data available.

**Section 12 - ECOLOGICAL INFORMATION****Component Analysis - Aquatic Toxicity**

No LOEL ecotoxicity data are available for this product's components.

**Persistence and Degradability**

No data available.

**Bioaccumulative Potential**

No data available.

**Mobility**

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): D003.

**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:** SULFUR TETRAFLUORIDE**Hazard Class:** 2.3**UN/NA #:** UN2418**Required Label(s):** 2.3**IMDG Information:****Shipping Name:** SULPHUR TETRAFLUORIDE**Hazard Class:** 2.3**UN#:** UN2418**Required Label(s):** 2.3 8**International Bulk Chemical Code**

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

**Section 15 - REGULATORY INFORMATION****U.S. Federal Regulations**

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

**Sulfur tetrafluoride****7783-60-0**



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SARA 302:	100 lb TPQ
OSHA (safety):	250 lb TQ
SARA 304:	100 lb EPCRA RQ

### SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Gas Under Pressure; Acute toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity

### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
<b>Sulfur tetrafluoride</b>	<b>7783-60-0</b>	Yes	Yes	Yes	Yes	Yes

Not listed under California Proposition 65

### Canada Regulations

### Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

<b>Sulfur tetrafluoride</b>	<b>7783-60-0</b>
	1 %

### WHMIS Classification

A , E , F

### Component Analysis - Inventory

### Sulfur tetrafluoride (7783-60-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	No

## Section 16 - OTHER INFORMATION

### NFPA Ratings

Health: 3 Fire: 0 Reactivity: 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

### Summary of Changes

Updated: 05/01/2015

### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania\*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG -



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Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; 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; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NDSL – Non-Domestic Substance List (Canada); 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; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

**Other Information****Disclaimer:**

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