SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	Sulphur tetrafluoride
Chemical description	Sulphur tetrafluoride
CAS N°	7783-60-0
CE N°	232-013-4
Index N°	--
Registration n°	Registration deadline not expired
Chemical formula	SF_4

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Industrial and professional Test gas/Calibration gas Chemical reaction / Synthesis Laboratory use Polymer production. Contact supplier for more information on uses
Uses advised against	Consumer use not recommended

1.3. Details of the supplier of the safety data sheet

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	info@multigas.ch

1.4. Emergency telephone numbers

145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51

+41 (0) 26 676 94 94 (Multigas)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards	Gases under pressure : Liquefied gas	H280
	Skin corrosion/irritation, Category 1A	H314

Serious eye damage/eye irritation, Category 1	H318
Acute toxicity (inhalation: gas) Category 1	H330
Specific target organ toxicity - single exposure (Category 3), Respiratory system	H335

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms

GHS04 GHS05 GHS06

Signal word Danger

Hazard statements

H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
EUH071	Corrosive to the respiratory tract

Precautionary statements

P233	Keep container tightly closed
P260	Do not breathe gas, vapours
P280	Wear protective gloves, protective clothing, eye protection, face protection
P303+P361+P353+P315	IF ON SKIN: (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention
P304+P340+P315	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention
P305+P351+P338+P315	IF IN EYES Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention.
P410+403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

2.3. Other hazards

A powerful liberator of hydrogen fluoride

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Concentration	Classification
Sulphur tetrafluoride	(CAS-No.) 7783-60-0 (EC-No.) 232-013-4 (EC Index-No.) --- (Registration-No.) --	<= 100%	Press. Gas (Liq.), H280 Acute Tox. 1 (Inhalation: gas), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

Contains no other components or impurities which will influence the classification of the product

3.2. Mixtures

Not established

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice

See a doctor. Show this safety data sheet to the attending physician

Hydrofluoric acid burns require emergency medical assistance. Symptoms may not appear until 24 hours later, depending on the concentration of hydrofluoric acid. Following decontamination with water, more serious damage may occur due to the penetration or absorption of the fluoride ion

The treatment should have for the purpose of binding the fluoride ion and to combat the effects of exposure. Exposed skin can be treated with a 2.5% calcium gluconate gel, repeated application, until the burning sensation ceases

More serious skin contact may require the use of subcutaneous calcium gluconate except in the finger area - unless the doctor has experience with this method - because of the risk of tissue damage caused by the increase in pressure

Absorption can easily occur through the subungual regions, which should be taken into account during decontamination. In an attempt to prevent the absorption of fluoride ion, if swallowed, give conscious victim milk or give him chewable tablets of calcium carbonate or milk of magnesia. Potential conditions, such as hypocalcaemia, hypomagnesemia and cardiac arrhythmia, should be controlled as they are likely to occur following exposure to the product

In case of inhalation

In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor

In case of skin contact

Remove contaminated clothing and shoes immediately. Wash with soap and plenty of water. Take victim immediately to hospital. See a doctor

In case of eyes contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor

In case of ingestion Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

4.2. Most important symptoms and effects, both acute and delayed

May cause severe chemical burns to the skin and cornea. Provide first aid treatment immediately available. Prolonged exposure to low concentrations may cause pulmonary oedema

Potential adverse delayed effects

Destructive material of mucosal tissues and trachea. Cough, shortness of breath, headache, nausea

Refer to Section 11

4.3. Indication of any immediate medical attention and special treatment needed

May cause asphyxiation at high concentration. Symptoms may be loss of consciousness or motor skills. The victim may not be aware of asphyxiation

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water spray or water mist. Dry powder. Carbon dioxide. Foam

Unsuitable extinguishing media Do not use water jet to extinguish

5.2. Special hazards arising from the substance or mixture

Specific hazards In case of fire or excessive heat, hazardous combustion products may be produced

Exposure to fire may cause containers to rupture/explode

Hazardous combustion products In case of fire or excessive heat, hazardous combustion products may be produced such as : hydrogen fluoride, sulphur dioxide

5.3. Additional information

Cool endangered receptacles with water spray jet from a protected position

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours, spray mists or gases

Provide adequate ventilation

Evacuate personnel to a safe place

Personal protective equipment, see section 8

6.2. Environmental precautions

Try to stop the leak

6.3. Methods and material for containment and cleaning up

Ventilate the area

Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost)

6.4. Reference to other sections

See also sections 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes

Avoid breathing vapour or mist

For precautions, see section 2.2

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place

Content under pressure

7.3. Specific end use(s)

None

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components with occupational exposure limits

Component	CAS N°	Exposure value type	Control parameter	Source
Sulphur tetrafluoride	7783-60-0	TWA	0.1 ppm	SUVA: Limit values of exposure to workstations
			0.4 mg/m³	
		OEL	-	SUVA: Limit values of exposure to workstations
			-	

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation

Gas detectors should be used when flammable / toxic gases / vapours are likely to be released

8.2.2. Individual protection measures, e.g. personal protective equipment

Eye/face protection	Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166
Skin / hand protection	Wear protective gloves when handling gas cylinders. Standard EN 388-Protective gloves against mechanical hazards Wear cold insulating gloves when transferring or disconnecting transfer lines Standard EN 511 - Insulating gloves against cold Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals **For short-term use** Material: Nitrile rubber Penetration time:> 60 min Glove thickness: 0.4 mm **For long-term use** Material: Fluoroelastomer Penetration time:> 480 min Glove thickness: 0.7 mm Have appropriate, chemical-resistant protective clothing ready for use in emergencies
Respiratory protection	When the risk assessment shows that the use of respirable respirators is appropriate, use a full face mask with EN 14387 multipurpose cartridge. If the mask is the only means of protection, use a full face respirator. Use NIOSH (US) or CEN (EU) tested and approved equipment

8.2.3. Environmental exposure controls

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
• **Physical state at 20°C / 101.3kPa**	Gas
• **Colour**	Colourless
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point / Freezing point	-121°C
Boiling point	-40.4°C
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Explosive limits	No data available

Vapour pressure [20°C]	10 bar
Vapour pressure [50°C]	No data available
Vapour density	No data available
Relative density, liquid (water=1)	No data available
Relative density, gas (air=1)	3.7
Water solubility	No data available
Partition coefficient n-octanol/water (Log Kow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

9.2. Other information

Molar mass	108 g/mol
Critical temperature [°C]	91°C
Relative vapour density	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

Reacts violently with water

10.4. Conditions to avoid

Reacts violently with glass
Avoid moisture in installation systems

10.5. Incompatible materials

Reacts with most metals in the presence of moisture, releasing hydrogen
Water, acids, glass
For additional information on compatibility refer to ISO 11114

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1. Chemical safety assessment

Acute toxicity	Fatal if inhaled Delayed fatal pulmonary oedema possible Absorption of excessive fluorides can result in acute systemic fluorosis with hypocalcaemia, interference with various metabolic functions and organ damage (heart, liver, kidneys)
Skin corrosion/irritation	Causes severe skin burns and eye damage
Serious eye damage/irritation	Causes serious eye damage
Respiratory or skin sensitisation	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure – Target organ(s)	Severe corrosion to the respiratory tract at high concentrations
STOT-repeated exposure	No data available
Ingestion hazard	No data available

SECTION 12: Ecological information

12.1. Toxicity

Assessment	No data available

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

12.6. Other adverse effects

Contains one or more fluorinated greenhouse gases

Can contribute to the greenhouse effect when discharged in large quantities

May cause pH changes in aqueous ecological systems

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product

Must not be released into the atmosphere

Burn in a chemical incinerator equipped with an afterburner and scrubber

Return to the supplier the product not consumed in its original container

Contaminated container

Eliminate as unused product

Contact the supplier if instructions are needed

OMoD Code

16 05 04

Gases in pressure containers containing dangerous substances

SECTION 14: Transport information

14.1. UN number

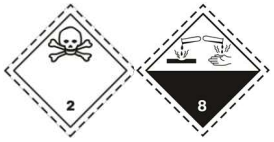
Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
2418	2418	2418

14.2. UN proper shipping name

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
Sulphur tetrafluoride	Sulphur tetrafluoride	Sulphur tetrafluoride

14.3. Transport hazard class(es)

Labelling



ADR/RID
IMDG
IATA

2.3 : Toxic gases

8 : Corrosive substances

14.4. Packing group

ADR/RID
IMDG
IATA

Not established

14.5. Environmental hazards

ADR/RID	None
IMDG	None
ICAO-TI / IATA-DGR	None

14.6. Special precautions for user

No data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

15.2. Chemical safety assessment

A CSA has not yet been carried out

SECTION 16: Other information

Indication of changes

Revised safety data sheet in accordance with commission regulation (EU) No 2015/830

Abbreviations and acronyms

ADR :	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS :	Chemical Abstract Service number (USA)
CLP :	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CSA :	Chemical Safety Assessment
EIGA :	European Industrial Gases Association
EINECS :	European Inventory of Existing Commercial Chemical Substances
EN :	European Standard
ATE :	Acute Toxicity Estimate
IATA :	International Air Transport Association
IMDG Code :	International Maritime Dangerous Goods Code
LC50 :	Lethal Concentration to 50 % of a test population
OMoD :	Swiss Ordinance on the movement of waste
PBT :	Persistent, Bioaccumulative and Toxic
PPE:	Personal Protection Equipment
REACH :	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006

RID :	Regulations concerning the international carriage of dangerous goods by rail
RMM :	Risk Management Measures
STOT-SE :	Specific Target Organ Toxicity - Single Exposure
UN :	United Nations
vPvB :	Very Persistent and Very Bioaccumulative
WGK:	Water Hazards Class

Full text of H, EUH and P statements used in sections 2 and 3

Hazard statements

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H314	Causes severe skin burns and eye damage
H330	Fatal if inhaled.
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P410+403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press

They do not claim to be exhaustive and should be considered as a guide