	SAFETY DATASHEET	Page : 1/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

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

1.1. Product identifier

Trade name	Tungsten hexafluoride
Chemical description	Tungsten hexafluoride
CAS N°	7783-82-6
CE N°	232-029-1
Index N°	--
Registration n°	01-2120059384-53
Chemical formula	WF ₆

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

Relevant identified uses	Industrial and professional Test gas/Calibration gas Laboratory use Chemical reaction / synthesis Use for manufacture of electronic/photovoltaic components 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

	SAFETY DATASHEET	Page : 2/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

Health hazards	Acute toxicity (oral) Category 1	H301
	Acute toxicity (dermal) Category 1	H311
	Skin corrosion/irritation, Category 1A	H314
	Serious eye damage/eye irritation, Category 1	H318
	Acute toxicity (inhalation: gas) Category 1	H330

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
H301+H311+H331	Toxic if swallowed, in contact with skin, by inhalation
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
EUH071	Corrosive to the respiratory tract

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray
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+P403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

2.3. Other hazards

None

	SAFETY DATASHEET	Page : 3/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Concentration	Classification
Tungsten hexafluoride	(CAS-No.) 7783-82-6 (EC-No.) 232-029-1 (EC Index-No.) --- (Registration-No.) 01-2120059384-53	<= 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
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 burns to the skin and cornea. Before using the product, consult a doctor.

Prolonged exposure to low concentrations may cause pulmonary oedema. Health damage can occur with delays.

The product destroys the mucous membranes and the upper respiratory tract. May cause coughing, shortness of breath, headache, nausea and vomiting.

See section 11

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

Treat with corticosteroid spray as soon as possible after inhalation

Tungsten hexafluoride

MTG123

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, tungsten and its oxides

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

No data available

6.3. Methods and material for containment and cleaning up

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

For precautions, see section 2.2

	SAFETY DATASHEET	Page : 5/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

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
Tungsten hexafluoride (No data available for the product itself)	7783-82-6	TWA	5 mg/m ³ (Inhalable dust of tungsten)	SUVA: Limit values of exposure to workstations
		OEL	-	
			-	

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
Respiratory protection	Self-contained breathing apparatus (SCBA) or positive pressure air mask must be used in oxygenated atmospheres. Standard EN 137 - Self-contained compressed air device with a full face mask

8.2.3. Environmental exposure controls

Avoid any spill or leak if it can be done safely

	SAFETY DATASHEET	Page : 6/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

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	2.3°C
Boiling point	17°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]	1.1 bar
Vapour pressure [50°C]	2.3 bar
Vapour density	No data available
Relative density, liquid (water=1)	3.4
Relative density, gas (air=1)	10.3
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	298 g/mole
Critical temperature [°C]	195.4°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

	SAFETY DATASHEET	Page : 7/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

In contact with an acid, releases a toxic gas

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Reacts with water to form corrosive acids
 Reacts with most metals in the presence of moisture, liberating hydrogen
 With water causes rapid corrosion of alkaline-earth metals
 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

	SAFETY DATASHEET	Page : 8/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

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

No data available

SECTION 13: Disposal considerations


13.1. Waste treatment methods

Product	<p>Must not be released into the atmosphere</p> <p>Burn in a chemical incinerator equipped with an afterburner and scrubber</p> <p>Return to the supplier the product not consumed in its original container</p>
Contaminated container	<p>Eliminate as unused product</p> <p>Contact the supplier if instructions are needed</p>
OMoD Code	<p>16 05 04</p> <p>Gases in pressure containers containing dangerous substances</p>

SECTION 14: Transport information

14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
2196	2196	2196

	SAFETY DATASHEET	Page : 9/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

14.2. UN proper shipping name

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

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 been carried out

	SAFETY DATASHEET	Page : 10/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

SECTION 16: Other information

Indication of changes	Revised safety data sheet in accordance with commission regulation (EU) No 2015/830
Abbreviations and acronyms	<p>ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>CAS : Chemical Abstract Service number (USA)</p> <p>CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</p> <p>CSA : Chemical Safety Assessment</p> <p>EIGA : European Industrial Gases Association</p> <p>EINECS : European Inventory of Existing Commercial Chemical Substances</p> <p>EN : European Standard</p> <p>ATE : Acute Toxicity Estimate</p> <p>IATA : International Air Transport Association</p> <p>IMDG Code : International Maritime Dangerous Goods Code</p> <p>LC50 : Lethal Concentration to 50 % of a test population</p> <p>OMoD : Swiss Ordinance on the movement of waste</p> <p>PBT : Persistent, Bioaccumulative and Toxic</p> <p>PPE: Personal Protection Equipment</p> <p>REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006</p> <p>RID : Regulations concerning the international carriage of dangerous goods by rail</p> <p>RMM : Risk Management Measures</p> <p>STOT-SE : Specific Target Organ Toxicity - Single Exposure</p> <p>UN : United Nations</p> <p>vPvB : Very Persistent and Very Bioaccumulative</p> <p>WGK: Water Hazards Class</p>


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

Hazard statements

H280	Contains gas under pressure; may explode if heated
H301+H311+H331	Toxic if swallowed, in contact with skin, by inhalation
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
EUH071	Corrosive to the respiratory tract

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection

	SAFETY DATASHEET	Page : 11/11
		Revised edition n° : 10.0
		Revision date : 05/2018
Tungsten hexafluoride		MTG123

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+P403 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