Safety Data Sheet

Sulfur hexafluoride (CANgas)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: D-SF6-110-DD
Issue date: 12/15/2016 Revision date: 3/8/2017 Supersedes version of: 3/8/2017 Version: 0.3

Warning

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

1.1. Product identifier

Trade name : Sulfur hexafluoride (CANgas)
SDS no : D-SF6-110-DD

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

Relevant identified uses : Industrial and professional uses. Perform risk assessment prior to use.
Test gas/Calibration gas.
Laboratory use.
Contact supplier for more information on uses.

Uses advised against : Do not inhale product on purpose because of the risk of asphyxiation.
Consumer use.

1.3. Details of the supplier of the safety data sheet

Messer Industriegase GmbH GmbH
Messer- Platz 1
D - 65812 Bad Soden am Taunus
Germany
T 0049-(0)-6196 7760-200 - F 0049-(0)-6196 7760-280
SDB.de@messergroup.com - www.messer.de

1.4. Emergency telephone number

Emergency telephone number : Messer Produktionsgesellschaft Salzgitter GmbH +49 (0) 5341 21-9333, erreichbar
Montags 0:00 bis Sonntags 24:00

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards	Aerosol, Category 3	H229

2.2. Label elements

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

Signal word (CLP) : Warning
Hazard statements (CLP) : H229 - Pressurised container: May burst if heated.
Precautionary statements (CLP)
- Prevention : P251 - Do not pierce or burn, even after use.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Storage : P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 122 °F, 50 °C.

2.3. Other hazards

Asphyxiant in high concentrations.
Contact with liquid may cause cold burns/frostbite.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Sulphur hexafluoride	CAS-No.: 2551-62-4 EC-No.: 219-854-2 EC Index-No.: --- REACH-no: 01-2119458769-17	100	Press. Gas (Liq.), H280

Full text of H- and EUH-statements: see section 16
Contains no other components or impurities which will influence the classification of the product.

SECTION 4: First aid measures

4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- Eye contact : Adverse effects not expected from this product.
- Ingestion : Ingestion is not considered a potential route of exposure.

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

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
See section 11.

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Exposure to fire may cause containers to rupture.
Hazardous combustion products : If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Hydrogen fluoride. Sulphur dioxide.

5.3. Advice for firefighters

Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
Move containers away from the fire area if this can be done without risk.

Special protective equipment for fire fighters	:	Use self-contained breathing apparatus. Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Try to stop release.
Evacuate area.
Monitor concentration of released product.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Act in accordance with local emergency plan.
Stay upwind.

6.2. Environmental precautions

Try to stop release.

6.3. Methods and material for containment and cleaning up

Ventilate area.

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe use of the product	:	The product must be handled in accordance with good industrial hygiene and safety procedures. Only experienced and properly instructed persons should handle gases under pressure. Consider pressure relief device(s) in gas installations. Ensure the complete gas system was (or is regularily) checked for leaks before use. Do not smoke while handling product. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Do not breathe gas. Avoid release of product into work area.
Safe handling of the gas receptacle	:	Never use direct flame or electrical heating devices to raise the pressure of a container. Refer to supplier's container handling instructions. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Druckdose an einem gut gelüfteten Ort lagern. . .

7.2. Conditions for safe storage, including any incompatibilities

Observe all regulations and local requirements regarding storage of containers.
Container valve guards or caps should be in place.
Containers should be stored in the vertical position and properly secured to prevent them from falling over.
Stored containers should be periodically checked for general condition and leakage.
Keep container below 50°C in a well ventilated place.
Store containers in location free from fire risk and away from sources of heat and ignition.
Keep away from combustible materials.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sulfur hexafluoride (CANgas)	
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	6100 mg/m³
AGW (OEL TWA) [2]	1000 ppm
AGW (OEL C) [ppm]	8

Sulphur hexafluoride (2551-62-4)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Schwefelhexafluorid
AGW (OEL TWA) [1]	6100 mg/m³
AGW (OEL TWA) [2]	1000 ppm
Peak exposure limitation factor	8(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)
Regulatory reference	TRGS900

Sulfur hexafluoride (CANgas)	
DNEL: Derived no effect level (Workers)	
Long-term - local effects, inhalation	77900 mg/m³
Long-term - systemic effects, inhalation	77900 mg/m³

Sulphur hexafluoride (2551-62-4)	
DNEL: Derived no effect level (Workers)	
Long-term - systemic effects, inhalation	6074 mg/m³

Sulfur hexafluoride (CANgas)	
PNEC: Predicted no effect concentration	
Aqua (freshwater)	0.15 mg/l
Aqua (marine water)	1.5 mg/l

Sulphur hexafluoride (2551-62-4)	
PNEC: Predicted no effect concentration	
Aqua (freshwater)	0.15 mg/l

Aqua (marine water)	1.5 mg/l

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
Systems under pressure should be regularily checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Oxygen detectors should be used when asphyxiating gases may be released.
Consider the use of a work permit system e.g. for maintenance activities.

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

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.
The following recommendations should be considered:
PPE compliant to the recommended EN/ISO standards should be selected.

• Eye/face protection : Wear safety glasses with side shields.
Wear goggles when transfilling or breaking transfer connections.
Standard EN 166 - Personal eye-protection - specifications.

• Skin protection
- Hand protection : Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risk, performance level 1 or higher.
- Other : Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

• Respiratory protection : Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

• Thermal hazards : None necessary.

8.2.3. Environmental exposure controls

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

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 odour warning properties. Odour threshold is subjective and inadequate to warn of overexposure. Odour threshold is subjective and inadequate to warn of overexposure.
pH	:	Not applicable.
Melting point / Freezing point	:	-50.8 °C -50.8 °C
Boiling point	:	-64 °C
Flash point	:	Not applicable for gases and gas mixtures.
Flammability	:	Not available
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Vapour pressure [20°C]	:	Not applicable.
Vapour pressure [50°C]	:	Not applicable.
Density	:	Not applicable
Vapour density	:	Not available
Relative density, liquid (water=1)	:	1.4
Relative density, gas (air=1)	:	5
Water solubility	:	41 mg/l
Partition coefficient n-octanol/water (Log Kow)	:	1.68
Auto-ignition temperature	:	Not applicable.

Decomposition temperature	:	Not available
Viscosity, kinematic	:	Not applicable.
Particle characteristics	:	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosive properties	:	Not applicable.
Oxidising properties	:	None.
Critical temperature [°C]	:	45.5 °C

9.2.2. Other safety characteristics

Molar mass	:	146 g/mol
Evaporation rate	:	Not applicable for gases and gas mixtures.
Gas group	:	Press. Gas (Liq.)
Other data	:	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 normal conditions.

10.3. Possibility of hazardous reactions

None.

Reactivity : None.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

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. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	:	No known toxicological effects from this product.
Skin corrosion/irritation	:	No known effects from this product.
Serious eye damage/irritation	:	No known effects from this product.
Respiratory or skin sensitisation	:	No known effects from this product.
Germ cell mutagenicity	:	No known effects from this product.
Carcinogenicity	:	No known effects from this product.
Toxic for reproduction : Fertility	:	No known effects from this product.
Toxic for reproduction : unborn child	:	No known effects from this product.
STOT-single exposure	:	No known effects from this product.
STOT-repeated exposure	:	No known effects from this product.

Aspiration hazard : Not applicable for gases and gas mixtures.

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Assessment	:	Classification criteria are not met.
EC50 48h - Daphnia magna [mg/l]	:	247 mg/l
EC50 72h - Algae [mg/l]	:	No data available.
EC50 96h Algae [mg/l]	:	152 mg/l
LC50 96 h - Fish [mg/l]	:	236 mg/l

12.2. Persistence and degradability

Assessment : Not applicable for inorganic products.
No data available.

12.3. Bioaccumulative potential

Assessment : No data available.

12.4. Mobility in soil

Assessment : No data available.
Assessment : Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Effect on the ozone layer : None.
Effect on global warming : Contains fluorinated greenhouse gases listed in Annex I of EU 517/2014 as amended.
Calculated GWP of mixture : 22800
For quantities refer to cylinder label.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required.
Do not discharge into any place where its accumulation could be dangerous.
Ensure that the emission levels from local regulations or operating permits are not exceeded.
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at http://www.eiga.eu for more guidance on suitable disposal methods.
Avoid discharge to atmosphere.

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.
16 05 05 : Gases in pressure containers other than those mentioned in 16 05 04.

13.2. Additional information

None.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN

UN-No. : 1950

14.2. UN proper shipping name

Transport by road/rail (ADR/RID) :

Transport by air (ICAO-TI / IATA-DGR) : Aerosols, non-flammable

Transport by sea (IMDG) : AEROSOLS

14.3. Transport hazard class(es)

Labelling :

2.2 : Non flammable, non-toxic gases.

Transport by road/rail (ADR/RID)

Class : 2

Classification code : 5A

Tunnel Restriction : E - Passage forbidden through tunnels of category E

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.2

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.2

Emergency Schedule (EmS) - Fire : F-D

Emergency Schedule (EmS) - Spillage : S-U

14.4. Packing group

Transport by road/rail (ADR/RID) : Not applicable

Transport by air (ICAO-TI / IATA-DGR) : Not applicable

Transport by sea (IMDG) : Not applicable

14.5. Environmental hazards

Transport by road/rail (ADR/RID) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.

Transport by sea (IMDG) : None.

14.6. Special precautions for user

Packing Instruction(s)

Transport by road/rail (ADR/RID) : P207.
LP02

Transport by air (ICAO-TI / IATA-DGR)

Passenger and Cargo Aircraft : 203.

Cargo Aircraft only : 203.

Transport by sea (IMDG) : P207.
LP02

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment.
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.
Before transporting product containers:
- Ensure there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

EU-Regulations

Restrictions on use : Not allowed for magnesium die-casting. (Regulation (EU) No 517/2014).
Not allowed to be used for inflating tyres. (Regulation 517/2014).
Contains no substance(s) listed on the REACH Candidate List

Other information, restriction and prohibition regulations : Ensure all national/local regulations are observed.

Seveso Directive : 2012/18/EU (Seveso III) : Not covered.

National regulations

Water hazard class (WGK) : nwg - Non-hazardous to water

Kenn-Nr. : 846

Regulatory reference : National / local legislations :
Sec15 DE General.
.
Classification for storage according to TRGS 510 : 2B Aerosolpackungen und Feuerzeuge.
TA Luft.

15.2. Chemical safety assessment

A CSA has been carried out.

SECTION 16: Other information

Indication of changes :

Training advice : The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Receptacle under pressure.

Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.
Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).

Full text of H- and EUH-statements	
Aerosol 3	Aerosol, Category 3
H229	Pressurised container: May burst if heated.
H280	Contains gas under pressure; may explode if heated.
Press. Gas (Liq.)	Gases under pressure : Liquefied gas

DISCLAIMER OF LIABILITY : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Details given in this document are believed to be correct at the time of going to press.
Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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