Safety data sheet
Sulphur hexafluoride.

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

1.1. Product identifier
Product name
Sulphur hexafluoride.
Trade name
Gas Art. 372 Sulphur hexafluoride 3.0

EC No (from EINECS): 219-854-2
CAS No: 2551-62-4
Index-Nr.
Chemical formula SF6
REACH Registration number:
01-2119458769-17

1.2. Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses
Industrial and professional. Perform risk assessment prior to use.
Uses advised against
Consumer use.

1.3. Details of the supplier of the safety data sheet
Company identification
Linde Gas GmbH, 4651 Stadl-Paura, Austria
E-Mail Address office@at.linde-gas.com

1.4. Emergency telephone number
Emergency phone numbers (24h): +43 50 4273

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification acc. to Regulation (EC) No 1272 / 2008 / EC (CLP / GHS)
Press. Gas (Liquefied gas) - Contains gas under pressure; may explode if heated.

Classification acc. to Directive 67 / 548 / EEC & 1999 / 45 / EC: Not classified as dangerous substance.

Asphyxiant in high concentrations.
Risk advice to man and the environment
Liquefied gas.
In high concentrations may cause asphyxiation.

2.2. Label elements
- Labelling Pictograms

- Signal word
Warning

- Hazard Statements

H280	Contains gas under pressure; may explode if heated.
EIGA-As	Asphyxiant in high concentrations.

- Precautionary Statements

Precautionary Statement Prevention
None.

Precautionary Statement Response
None.

Precautionary Statement Storage
P403 Store in a well-ventilated place.

Precautionary Statement Disposal
None.

2.3. Other hazards
None.

SECTION 3: Composition / information on ingredients

Substance / Mixture: Substance.

3.1. Substances
Sulphur hexafluoride.
CAS No: 2551-62-4
Index-Nr.:
EC No (from EINECS): 219-854-2
REACH Registration number:
01-2119458769-17
Contains no other components or impurities which will influence the classification of the product.

3.2. Mixtures
Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures
First Aid General Information:
Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
First Aid Inhalation:
Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
First Aid Skin / Eye:
In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance. Immediately flush eyes thoroughly with water for at least 15 minutes.
First Aid 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.

4.3. Indication of any immediate medical attention and special treatment needed
None.

SECTION 5: Fire fighting measures

5.1. Extinguishing media
Suitable extinguishing media
All known extinguishants can be used.

5.2. Special hazards arising from the substance or mixture
Specific hazards
Exposure to fire may cause containers to rupture / explode.
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 fire-fighters
Specific methods
If possible, stop flow of product. Move container away or cool with water from a protected position.
Special protective equipment for fire-fighters
Use self-contained breathing apparatus and chemically protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. 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. Monitor concentration of released product.

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
Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Refer to supplier's handling instructions. Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service. Do not smoke while handling product. Only experienced and properly instructed persons should handle gases under pressure. Protect containers from physical damage; do not drag, roll, slide or drop. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Ensure the complete gas system has been (or is regularly) checked for leaks before use. If user experiences any difficulty operating container valve discontinue use and contact supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminants particularly oil and water. Never attempt to transfer gases from one container to another. The substance must be handled in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for safe storage, including any incompatibilities
Secure cylinders to prevent them from falling. Keep container below 50°C in a well ventilated place. Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Cylinders should be stored in the vertical position and properly secured to prevent falling over. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in 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
Exposure limit value

Value type	(a)	value	Note
Austria - MAK		1.000 ppm	2011

8.2. Exposure controls
Appropriate engineering controls
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. Product to be handled in a closed system. Keep concentrations well below occupational exposure limits. The substance must be handled in accordance with good industrial hygiene and safety procedures. Consider work permit system e.g. for maintenance activities. Systems under pressure should be regularly checked for leakages. Provide adequate general or local ventilation. Oxygen detectors should be used when asphyxiating gases may be released.
Personal protective equipment
Eye and face protection

Protect eyes, face and skin from contact with product. Wear eye protection to EN 166 when using gases. Wear safety glasses with side shields.

Skin protection

Hand protection

Advice: Wear working gloves and safety shoes while handling containers.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

Other protection

Wear working gloves and safety shoes while handling containers.

Respiratory protection

Not required

Thermal hazards

If there is a risk of contact with the liquid, all protective equipment should be suitable for extremely low temperatures.

Environmental Exposure Controls

Specific risk management measures are not required beyond good industrial hygiene and safety procedures. 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

General information

Appearance / Colour: Colourless gas.

Odour: No odour warning properties.

Odour threshold:

Odour threshold is subjective and inadequate to warn for over exposure.

Melting point: -50,8 °C

Boiling point: -63,8 °C

Flash point: Not applicable for gases and gas mixtures.

Evaporation rate: Not applicable for gases and gas mixtures.

Flammability range: Non flammable.

Vapour Pressure 20 °C: 21 bar

Relative density, gas (Air=1): 5

Partition coefficient: n-octanol / water:

Not applicable.

Autoignition temperature: Not applicable.

Explosive properties:

Explosive acc. EU legislation: Not explosive.

Explosive acc. transp. reg.: Not explosive.

Oxidising properties: Not applicable.

Molecular weight: 146 g / mol

Sublimation point: -64 °C

Critical temperature: 45,5 °C

Relative density, liquid (Water=1): 1,4

9.2. Other information

Gas / vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity

Decomposition under influence of moisture is highly accelerated by heating.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Heat.

10.5. Incompatible materials

No reaction with any common materials in dry or wet conditions.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. The following decomposition products may be produced:

Sulphur dioxide, Hydrogen fluoride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

General

No known toxicological effects from this product.

Acute oral toxicity

No known effects from this product.

Acute inhalation toxicity

No known effects from this product.

Acute dermal toxicity

No known effects from this product.

Acute toxicity other routes

No known effects from this product.

Skin irritation

No known effects from this product.

Eye irritation

No known effects from this product.

Sensitization

No known effects from this product.

Repeated dose toxicity

Species: Rat

Route of application: Inhalation

Exposure time numeric value: 672 h

No known effects from this product.

Assessment mutagenicity

There is no evidence of mutagenic potential.

Assessment carcinogenicity

No evidence of carcinogenic effects.

Assessment toxicity to reproduction

No indication of toxic effects.

Assessment teratogenicity

No indication of teratogenic effects.

Other relevant toxicity information

None.

Experiences with human exposure

None.

SECTION 12: Ecological information

12.1. Toxicity
When discharged in large quantities may contribute to the greenhouse effect.
Acute and prolonged toxicity fish
Species: Fish (Various)
Exposure time: 2.304 h
Value type: LC50
Value in standard unit mg / l: 236 mg / l
Acute toxicity aquatic invertebrates
Species: Crustaceans
Exposure time: 48 h
Value type: LC50
Value in standard unit mg / l: 247 mg / l
Toxicity aquatic plants
Species: Algae
Exposure time: 96 h
Value type: EC50
Value in standard unit mg / l: 151 mg / l

12.2. Persistence and degradability

Photo degradation
Half life (direct photolysis): 365.000 d
Stability in water
Non-significant hydrolysis
Stability in soil
Non-significant hydrolysis
Biodegradation
Not readily biodegradable. Inorganic compound.

12.3. Bioaccumulative potential
The substance has no potential for bioaccumulation.

12.4. Mobility in soil
The substance has low mobility in soil.

12.5. Results of PBT and vPvB assessment
No data available.

12.6. Other adverse effects
Global Warming Potential GWP
Contains fluorinated greenhouse gases covered by the Kyoto protocol.
22.200

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.
EWC Nr. 16 05 05

SECTION 14: Transport information

ADR / RID

14.1. UN number
1080

14.2. UN proper shipping name
Sulphur hexafluoride

14.3. Transport hazard class(es)
Class: 2
Classification Code: 2A
Labels: 2.2
Hazard number: 20
Tunnel restriction code: (C / E)
Emergency Action Code: 2TE

14.4. Packing group (Packing Instruction)
P200

14.5. Environmental hazards
None.

14.6. Special precautions for user
None.

IMDG

14.1. UN number
1080

14.2. UN proper shipping name
Sulphur hexafluoride

14.3. Transport hazard class(es)
Class: 2.2
Labels: 2.2
EmS: F-C, S-V

14.4. Packing group (Packing Instruction)
P200

14.5. Environmental hazards
None.

14.6. Special precautions for user
None.

14.7. Transport in bulk according to Annex II of MARPOL73 / 78 and the IBC Code
Not applicable.

IATA

14.1. UN number
1080

14.2. UN proper shipping name
Sulphur hexafluoride

14.3. Transport hazard class(es)
Class: 2.2

Labels: 2.2

14.4. Packing group (Packing Instruction)
P200

14.5. Environmental hazards
None.

14.6. Special precautions for user
None.

Other transport information
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 that they are firmly secured. Ensure that the container valve is closed and not leaking. Ensure that the valve outlet cap nut or plug (where provided) is correctly fitted. Ensure that the valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture
Seveso Directive 96 / 82 / EC: Not covered.

15.2. Chemical safety assessment
A CSA does not need to be carried out for this product.

SECTION 16: Other information

Ensure all national / local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Advice
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. Details given in this document are believed to be correct at the time of going to press.

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