

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

1.1. Product identifier

Product form : Substance
 Substance name : Sulfur Hexafluoride
 CAS No : 2551-62-4
 Product code : SG-1001-00303
 Formula : SF6
 Synonyms : Sulfur fluoride (SF6) / Sulfur fluoride (SF6), (OC-6-11)- / Sulphur hexafluoride / Sulfur hexafluoride (SF6) / Sulphur hexafluoride (SF6) / Sulfur fluoride / Sulfur fluoride, (OC-6-11)-

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

Use of the substance/mixture : Test gas/Calibration gas

1.3. Details of the supplier of the safety data sheet

Air Liquide
 2700 Post Oak Boulevard
 Houston, TX 77056 - USA
 T 1-800-819-1704
www.us.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
 Liquefied gas H280
 Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US)



GHS04

Signal word (GHS-US)

: Warning

Hazard statements (GHS-US)

: H280 - Contains gas under pressure; may explode if heated
 OSHA-H01 - May displace oxygen and cause rapid suffocation
 CGA-HG01 - May cause frostbite

Precautionary statements (GHS-US)

: P202 - Do not handle until all safety precautions have been read and understood
 P271 - Use only outdoors or in a well-ventilated area
 P280 - Wear eye protection, face protection, protective gloves, protective clothing
 P302 - IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention
 P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
 P308+P313 - If exposed or concerned: Get medical advice/attention
 P403 - Store in a well-ventilated place
 P501 - Dispose of contents/container in accordance with local/regional/national/international regulations
 CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
 CGA-PG05 - Use a back flow preventive device in the piping
 CGA-PG06 - Close valve after each use and when empty
 CGA-PG10 - Use only with equipment rated for cylinder pressure
 CGA-PG14 - Approach suspected leak area with caution
 CGA-PG21 - Open valve slowly

2.3. Other Hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	Classification (GHS-US)
Sulfur Hexafluoride (Main constituent)	(CAS No) 2551-62-4	> 99.99	Liquefied gas, H280

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

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SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.
- First-aid measures after skin contact : Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.
- First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
- First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

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

- Symptoms/injuries after inhalation : May displace oxygen and cause rapid suffocation.
- Symptoms/injuries after skin contact : May cause frostbite.
- Symptoms/injuries after eye contact : Contact with the product may cause cold burns or frostbite.
- Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.
- Symptoms/injuries upon intravenous administration : Not known.
- Chronic symptoms : Adverse effects not expected from this product.

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

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : The product is not flammable.
- Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
- Reactivity : None known.

5.3. Advice for firefighters

- Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
- Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Ensure adequate ventilation.

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment consistent with the site emergency plan.

- Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

6.1.2. For emergency responders

- Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.
- Emergency procedures : Evacuate and limit access. Ventilate area.

6.2. Environmental precautions

Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up

- For containment : Try to stop release if safe to do so.
- Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections

See also Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.
- Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Do not eat, drink or smoke when using this product.

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7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.
Incompatible products : None known.
Incompatible materials : None known.

7.3. Specific end use(s)

See Section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sulfur Hexafluoride (2551-62-4)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m ³)	6000 mg/m ³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

8.2. Exposure controls

- Appropriate engineering controls : Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.
- Hand protection : Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection.
Eye protection : Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.
Skin and body protection : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.
Respiratory protection : None necessary during normal and routine operations. See Sections 5 & 6.
Thermal hazard protection : None necessary during normal and routine operations.
Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
- Other information : Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Gas
Appearance : Clear, colorless gas.
Molecular mass : 146 g/mol
Color : Colorless
Odor : Odorless
Odor threshold : No Data Available
pH : Not applicable.
Relative evaporation rate (butylacetate=1) : No data available
Relative evaporation rate (ether=1) : Not applicable for gases and gas-mixtures.
Melting point : No Data Available
Freezing point : -50.8 °C
Boiling point : -62.55 °C
Flash point : Not flammable
Critical temperature : 46.55 °C
Auto-ignition temperature : Not applicable.
Decomposition temperature : No data available
Flammability (solid, gas) : See Section 2.1 and 2.2
Vapor pressure : 2100 kPa
Critical pressure : 3760 kPa
Relative vapor density at 20 °C : 5.11
Relative density : 1.4
Specific gravity / density : 0.0061 g/cm³ (at 20 °C)
Relative gas density : Similar to air
Solubility : Water: 41 mg/l
Log Pow : 1.68
Log Kow : No data available
Viscosity, kinematic : Not applicable.
Viscosity, dynamic : Not applicable.
Explosive properties : Not applicable - not flammable.
Oxidizing properties : None.
Explosive limits : Not applicable - not flammable

9.2. Other information

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

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SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

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

10.5. Incompatible materials

None known.

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 toxicological effects

Acute toxicity : Not classified

Sulfur Hexafluoride (lf)2551-62-4

LC50 inhalation rat (ppm)	800000 ppm/4h
ATE US (gases)	800000.000 ppmV/4h

Skin corrosion/irritation	: Not classified pH: Not applicable.
Serious eye damage/irritation	: Not classified pH: Not applicable.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: May displace oxygen and cause rapid suffocation.
Symptoms/injuries after skin contact	: May cause frostbite.
Symptoms/injuries after eye contact	: Contact with the product may cause cold burns or frostbite.
Symptoms/injuries after ingestion	: Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	: Not known.
Chronic symptoms	: Adverse effects not expected from this product.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

Sulfur Hexafluoride (2551-62-4)

Persistence and degradability	Not applicable for inorganic gases.
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12.3. Bioaccumulative potential

Sulfur Hexafluoride (2551-62-4)

Log Pow	1.68
Bioaccumulative potential	No data available.

12.4. Mobility in soil

Sulfur Hexafluoride (2551-62-4)

Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
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12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

Global warming potential [CO₂=1] : 22200

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- 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.
- Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

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SECTION 14: Transport information

In accordance with DOT

Transport document description	: UN1080 Liquefied gas, n.o.s. (Sulfur Hexafluoride), 2.2
UN-No.(DOT)	: UN1080
Proper Shipping Name (DOT)	: Liquefied gas, n.o.s.
Department of Transportation (DOT) Hazard Classes	: 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Hazard labels (DOT)	: 2.2 - Non-flammable gas



DOT Symbols	: G - Identifies PSN requiring a technical name
DOT Special Provisions (49 CFR 172.102)	: T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	: 306
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 304
DOT Packaging Bulk (49 CFR 173.xxx)	: 314;315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 75 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 150 kg
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Additional information

Emergency Response Guide (ERG) Number	: 126
Other information	: No supplementary information available.
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 cylinder 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.

ADR

Transport document description	: UN 1080, 2.2, (C/E)
Class (ADR)	: 2 - Gases
Hazard identification number (Kemler No.)	: 20
Classification code (ADR)	: 2A
Hazard labels (ADR)	: 2.2 - Non-flammable compressed gas



Orange plates



Tunnel restriction code (ADR)	: C/E
LQ	: 120ml
Excepted quantities (ADR)	: E1

Transport by sea

UN-No. (IMDG)	: 1080
Proper Shipping Name (IMDG)	: LIQUEFIED GAS, N.O.S.
Class (IMDG)	: 2 - Gases
MFAG-No	: 126

Air transport

UN-No. (IATA)	: 1080
Proper Shipping Name (IATA)	: LIQUEFIED GAS, N.O.S.
Class (IATA)	: 2
Civil Aeronautics Law	: Gases under pressure/Gases nonflammable nontoxic under pressure

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SECTION 15: Regulatory information

15.1. US Federal regulations

Sulfur Hexafluoride (2551-62-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Sulfur Hexafluoride (2551-62-4)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Class A - Compressed Gas

EU-Regulations

Sulfur Hexafluoride (2551-62-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

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

Liquefied gas H280

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified

15.2.2. National regulations

Sulfur Hexafluoride (2551-62-4)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

Sulfur Hexafluoride (2551-62-4)

State or local regulations U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.
Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

Liquefied gas	Gases under pressure Liquefied gas
H280	Contains gas under pressure; may explode if heated

SDS US (GHS HazCom 2012)

This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.