




Safety Data Sheet – Sulfur Hexafluoride (SF₆)

RENEW ISSUE DATE: January 2020

Section 1 – Chemical Product and Company Information

Company:	Product Name
DILO Company Inc. & DILO Direct 11642 Pyramid Drive Odessa FL, 33556 TEL: 727-376-5593 www.dilo.com/www.dilodirect.com	SF ₆ – Sulfur Hexafluoride Other/Generic Names: Sulfur Fluoride Product Use: Industrial Chemical CAS No: 2551-62-4 Formula: SF ₆
Emergency: CHEMTREC 1-800-262-8200/chemtrec@chemtrec.com/ http://www.chemtrec.com/ (DILO Cust#: 6701)	

Section 2 – Hazards Identification

Classification (GHS-US)	OSHA/HCS status
Liquefied gas H280 Full text of H-phrases: see section 16	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	GHS label elements: Hazard pictograms
GASES UNDER PRESSURE - Liquefied gas	
Signal word (GHS – USA)	Hazard statements (GHS – USA)
Warning	Contains gas under pressure; may explode if heated. May cause frostbite. May displace oxygen and cause rapid suffocation.
Precautionary statements (GHS – USA)	Storage
General: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back-flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position.	Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated location.
Response	Prevention
Not Applicable	Use and store only outdoors or in a well-ventilated location.
Hazards not otherwise classified	
In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.	



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Section 3 – Composition/information on ingredients

Substance Mixture	Chemical name
Substance	Sulphur Hexafluoride
Other means of identification	CAS number/other identifiers
Sulfur fluoride (SF ₆), (OC-6-11)-; Sulfur fluoride (SF ₆); Sulfur hexafluoride; Sulfur fluoride	CAS number : 2551-62-4 – 100%

Section 4 – First aid measures

Skin contact	Inhalation
In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance. The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Eye contact	Ingestion
Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Refer to inhalation section for additional information
Most important symptoms and effects, both acute and delayed	Over-exposure signs/symptoms
In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.	No Specific data available
Specific treatments	Protection of first-aiders
No specific treatment	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation



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Section 5 – Fire-fighting measures

Suitable extinguishing media	Unsuitable extinguishing media
Use an extinguishing agent suitable for the surrounding fire	None known
Specific hazards arising from the chemical	Hazardous thermal decomposition products
Contains gas under pressure. In a fire or if heated, a pressure increase will occur, and the container may burst or explode	Decomposition products may include the following materials: sulfur oxides halogenated compounds
Special protective actions for fire-fighters	Special protective equipment for fire-fighters
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode

Section 6 – Accidental release measures

For non-emergency personnel	For emergency responders
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.	Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

Section 7 – Handling and storage

Precautions for safe handling	Storage conditions
Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight	Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.



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Section 7 Con't– Handling and storage

or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

OTHER PRECAUTIONS FOR HANDLING, STORAGE AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back-flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

Section 8 – Exposure controls/personal protection

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

Appropriate engineering controls	Eye protection
Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities. Systems under pressure should be regularly checked for leakages. Provide adequate general and local exhaust ventilation. Ensure exposure is below occupational exposure limits (where available).	Wear safety glasses with side shields or goggles when transferring gas or breaking transfer of gas connections. Wear safety glasses with side shields.
Hand protection	Respiratory protection
Wear working gloves when handling gas containers	Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.
Thermal hazard protection	Environmental exposure controls
Wear cold insulating gloves when transfilling or breaking transfer connections. None necessary.	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. Wear leather safety gloves and safety shoes when handling cylinders.	



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Section 9 – Physical and Chemical Properties

Physical state	Color
Gas. [NOTE: SHIPPED AS A LIQUEFIED COMPRESSED GAS. CONDENSES DIRECTLY TO A SOLID UPON COOLING.]	Colorless
Molecular weight	Molecular formula
146.06 g/mole	SF ₆
Melting/freezing point	Critical temperature
-50.8°C (-59.4°F)	45.5°C (113.9°F)
Odor	Odor threshold
Odorless.	Not available
pH	Flash point
Not available	[Product does not sustain combustion.]
Burning time	Burning rate
Not available	Not available
Evaporation rate	Flammability (solid, gas)
Not available	Not available
Lower and upper explosive (flammable) limits	Vapor pressure
Not available	320 (psig)
Vapor density	Specific Volume (ft³ /lb)
5 (Air = 1)	2.5994
Gas Density (lb/ft³)	Relative density & Solubility
0.3847	Not applicable

Section 9 – Physical and Chemical Properties con't

Solubility in water	Partition coefficient: noctanol/water
0.031 g/l	1.68
Auto-ignition temperature	Decomposition temperature
Not available	Not available
SADT	Viscosity
Not available	Not available

Section 10 – Stability and reactivity

Reactivity	Chemical stability
No specific test data related to reactivity available for this product or its ingredients.	The product is stable
Possibility of hazardous reactions	Conditions to avoid
Under normal conditions of storage and use, hazardous reactions will not occur	No specific data.
Hazardous decomposition products	Hazardous polymerization
Under normal conditions of storage and use, hazardous decomposition products should not be produced.	Under normal conditions of storage and use, hazardous polymerization will not occur

11 – Toxicological information



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Acute toxicity	Skin corrosion/irritation
Not classified	Not classified
Serious eye damage/irritation	Respiratory or skin sensitization
Not classified - pH: Not applicable	Not classified
Germ cell mutagenicity	Carcinogenicity
Not classified	Not classified
Reproductive toxicity	Specific target organ toxicity (single exposure)
Not classified	Not classified
Specific target organ toxicity (repeated exposure)	Aspiration hazard
Not classified No known effects from this product.	Not classified Not applicable

12 – Ecological information

Ecology - general	Persistence and degradability
No ecological damage caused by this product	Not applicable for inorganic gases
Bioaccumulative potential	
Log Pow - 1.68	Bioaccumulative potential - No data available.
Mobility in soil	Ecology - soil
No data available.	Because of its high volatility, the product is unlikely to cause ground or water pollution
Other adverse effects	
Effect on ozone layer: Known effect on the global warming	Global warming potential [CO ₂ =1] : 22200 Contains Fluorinated greenhouse gases covered by the Kyoto protocol

13 – Disposal considerations

Waste treatment methods	Waste disposal recommendations
Do not discharge into any place where its accumulation could be dangerous. Avoid discharge to atmosphere	Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.






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14 – Transport information - in accordance with DOT

Transport document description	UN-No.(DOT)
UN1080 Sulfur hexafluoride, 2.2	UN1080
Proper Shipping Name (DOT)	Department of Transportation (DOT) Hazard Classes
Sulfur hexafluoride	2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115
Hazard labels (DOT)	
2.2 Non-flammable gas	
Additional Information	Special transport precautions
Emergency Response Guide (ERG) Number: 126	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.
Transport by Sea	Air transport
UN-No. (IMDG): 1080 Proper Shipping Name (IMDG): SULPHUR HEXAFLUORIDE Class (IMDG): 2 - Gases MFAG-No : 126	UN-No.(IATA): 1080 Proper Shipping Name (IATA): Sulphur hexafluoride Class (IATA): 2 Civil Aeronautics Law: Gases under pressure/Gases nonflammable nontoxic under pressure

15 – Regulatory information

US Federal Regulations Sulfur hexafluoride (2551-62-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	SARA Section 311/312 Hazard Classes
Immediate (acute) health hazard Sudden release of pressure hazard	CAS Registry - 2551-62-4
Canada Sulfur hexafluoride (2551-62-4)	
Listed on the Canadian DSL (Domestic Substances List)	Listed on the Canadian IDL (Ingredient Disclosure List)
US State Regulations	
U.S. - California - Proposition 65 - Carcinogens List - No	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
U.S. - California - Proposition 65 - Developmental Toxicity - No	
U.S. - California - Proposition 65 - Reproductive Toxicity – Female - No	
U.S. - California - Proposition 65 - Reproductive Toxicity – Male - No	





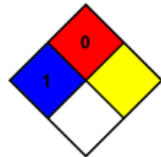
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16 – Other information

<p>DILO recommends to all users of this product to study this MSDS to become aware of the product hazards and safety information. To promote safe use of this product, all users and their management should advise, train and notify all employees, agents, and contractors of the information in this MSDS document and of any other known product hazards and safety information.</p> <p>It is also recommended that all users and their management should furnish this information to each purchaser of the product, and instruct each purchaser to notify its employees and customers of the product hazards and safety information.</p>	<p>The opinions expressed herein are those of DILO. DILO believes that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of DILO, it is the user's obligation to determine the conditions of safe use of the product. Finally, any revisions or edits made to this MSDS should be provided by DILO. Any changes, edits, revisions made outside of DILO should be validated with the corresponding agencies, authorities and experts of the product.</p>
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<p>Full text of H-phrases:</p>	
<p>Liquefied gas - Gases under pressure Liquefied gas</p>	<p>H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED (i.e. Gas expansion in pressure vessel)</p>

<p>NFPA health hazard: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.</p> <p>NFPA fire hazard: 0 - Materials that will not burn</p> <p>NFPA reactivity: 0 – Materials that are not reactive</p>	
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<p>HMIS III Rating Health: 1 Slight Hazard - Irritation or minor reversible injury possible</p> <p>Flammability: 0 Minimal</p> <p>Hazard Physical: 0 Minimal Hazard</p>	
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NOTE: To the best of our knowledge, the information contained herein is accurate. Information contained in this material safety data sheet is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information, and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe on any patent of DILO Company, Inc., DILO Direct or others covering any process, composition of matter or use. Since DILO shall have no control of the use of the product described herein, DILO Company, Inc. and DILO Direct assumes no liability for loss or damage incurred from the proper or improper use of such product.