

# Material Safety Data Sheet



Keysight Technologies, Inc.  
1400 Fountaingrove Parkway  
Santa Rosa, California 95403

## Sulfur Hexafluoride

### 1 . Identification of the material and supplier

<b>Names</b>	: Sulfur Hexafluoride - High Pressure Vessel
<b>Product name</b>	: E7200-80009, E7200-80059, E7200-89009 & 89059, E7200-89009 & 89059-DEF,
<b>Part No.</b>	N7210-80009, N7210-80059 :
<b>ADG</b>	SULPHUR HEXAFLUORIDE
<b>Supplier</b>	
<b>Supplier/Manufacturer</b>	: Keysight Technologies, Inc. 1400 Fountaingrove Parkway Santa Rosa, California 95403
<b>Emergency telephone number</b>	: (707) 577-3000 Monday - Friday 8:00 - 5:00
<b>Uses</b>	
<b>Area of application</b>	: Industrial applications, Professional applications.
<b>Material uses</b>	: Analytical chemistry. (used in wave guides and x-ray tubes)

### 2 . Hazards identification

<b>Classification</b>	: Not regulated.
<b>Risk phrases</b>	: Not classified.
<b>Safety phrases</b>	: S36- Wear suitable protective clothing.
<b>Statement of hazardous/ dangerous nature</b>	: NON-HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

### 3 . Composition/information on ingredients

<b>Mixture</b>	: No.
<b>Chemical name</b>	: Sulphur hexafluoride
<b>CAS number</b>	: 2551-62-4
<b>Molecular formula</b>	: SF <sub>6</sub>

Ingredient name	CAS number	%
Sulphur hexafluoride	2551-62-4	>60

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

### 4 . First-aid measures

<b>Inhalation</b>	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Get medical attention if adverse health effects persist or are severe.
<b>Ingestion</b>	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.
<b>Skin contact</b>	: Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area.

## 4 . First-aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.
- Advice to doctor** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5 . Fire-fighting measures

### Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : 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.
- Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
sulfur oxides  
halogenated compounds  
Hydrogen fluoride (HF).
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.
- Special remarks on fire hazards** : Emits toxic fumes when heated.
- Hazchem code** : 2TE

## 6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Immediately contact emergency personnel. Stop leak if without risk.

## 7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Contains gas under pressure. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not puncture or incinerate container.
- Storage** : Do not store above the following temperature: 51.667°C (125°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use.

**8 . Exposure controls/personal protection****Occupational exposure limits**

<b>Ingredient name</b>	<b>Exposure limits</b>
Sulphur hexafluoride	<b>Safe Work Australia (Australia, 1/2014).</b> TWA: 5970 mg/m <sup>3</sup> 8 hours. TWA: 1000 ppm 8 hours.

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Exposure controls**

- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. If operating conditions cause high gas concentrations to be produced or any recommended or statutory exposure limit is exceeded, use an air-fed respirator or self-contained breathing apparatus. The gas can cause asphyxiation without warning by replacing the oxygen in the air. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**9 . Physical and chemical properties**

- Physical state** : Gas.
- Colour** : Colourless.
- Odour** : Odourless.
- Boiling point** : Not available.
- Melting point** : -50.8°C (-59.4°F)
- Vapour pressure** : 2.9 kPa (21.5 mm Hg) [room temperature]
- Relative density** : 1.9 [Water = 1]
- Flash point** : Not available.
- Flammable limits** : Not available.
- Vapour density** : 5 [Air = 1]
- pH** : Not available.

## 9 . Physical and chemical properties

<b>Viscosity</b>	: Dynamic (room temperature): 0.0156 mPa·s (0.0156 cP)
<b>Auto-ignition temperature</b>	: Not available.
<b>Solubility</b>	: Soluble in the following materials: diethyl ether. Partially soluble in the following materials: methanol. Very slightly soluble in the following materials: cold water and hot water.
<b><u>Aerosol product</u></b>	
<b>Heat of combustion</b>	: 0.009642 kJ/g
<b>Flame duration</b>	: Not applicable.

## 10 . Stability and reactivity

<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	: Do not allow gas to accumulate in low or confined areas.
<b>Materials to avoid</b>	: Reactive or incompatible with the following materials: oxidizing materials, combustible materials and metals. Slightly reactive or incompatible with the following materials: organic materials. Hydrogen fluoride (HF).
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 . Toxicological information

### Potential acute health effects

<b>Inhalation</b>	: At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
<b>Ingestion</b>	: Ingestion of liquid can cause burns similar to frostbite.
<b>Skin contact</b>	: Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
<b>Eye contact</b>	: Liquid can cause burns similar to frostbite.

### Acute toxicity

**Conclusion/Summary** : Not available.

### Potential chronic health effects

#### Irritation/Corrosion

**Conclusion/Summary** : Not available.

#### Sensitiser

**Conclusion/Summary** : Not available.

### Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

<b>Chronic effects</b>	: No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Inhalation</b>	: No specific data.
<b>Ingestion</b>	: Adverse symptoms may include the following: frostbite
<b>Skin</b>	: Adverse symptoms may include the following: frostbite
<b>Eyes</b>	: Adverse symptoms may include the following: frostbite

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### 11 . Toxicological information

- Other adverse symptoms** : Adverse symptoms may include the following: nausea or vomiting, drowsiness/fatigue, dizziness/vertigo, convulsive seizures, coma.
- Target organs** : May cause damage to the following organs: lungs, upper respiratory tract, bones, central nervous system (CNS).

### 12 . Ecological information

**Ecotoxicity** : This product shows a low bioaccumulation potential.

#### Other ecological information

##### Bioaccumulative potential




Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Sulphur hexafluoride	1.68	-	low

**Other adverse effects** : No known significant effects or critical hazards.

### 13 . Disposal considerations

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

### 14 . Transport information

Regulation	UN number	Proper shipping name	Classes	PG*	Label	Additional information
ADG	UN1080	SULPHUR HEXAFLUORIDE	2.2	-		<b>Hazchem code</b> 2TE
IMDG	UN1080	SULPHUR HEXAFLUORIDE	2.2	-		<b>Emergency schedules (EmS)</b> F-C, S-V
IATA	UN1080	Sulphur hexafluoride	2.2	-		<b>Passenger and Cargo Aircraft</b> Quantity limitation: 75 kg Packaging instructions: 200 <b>Cargo Aircraft Only</b> Quantity limitation: 150 kg Packaging instructions: 200 <b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: Forbidden Packaging instructions: Forbidden

PG\* : Packing group

## 15 . Regulatory information

### [Standard Uniform Schedule of Medicine and Poisons](#)

Not regulated.

### [Control of Scheduled Carcinogenic Substances](#)

<a href="#">Ingredient name</a>	<a href="#">Schedule</a>
No listed substance	

[Australia inventory \(AICS\)](#) : This material is listed or exempted.

## 16 . Other information

[Date of issue](#) : 25/06/2015

[Date of previous issue](#) : 17/07/2012.

 Indicates information that has changed from previously issued version.

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