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## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** Disulphur decafluoride

### 1.2 Other means of identification

**Product number** -

**Other names** DISULFUR DECAFLUORIDE;Sulfur pentafluoride;EINECS 227-204-4

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Industrial and scientific research uses.

**Uses advised against** no data available

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

no data available

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)** no data available

**Signal word** no data available

**Hazard statement(s)** no data available

**Precautionary statement(s)**

**Prevention** no data available

**Response** no data available

**Storage** no data available

**Disposal** no data available

### 2.3 Other hazards which do not result in classification

no data available

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Disulphur decafluoride	Disulphur decafluoride	5714-22-7	227-204-4	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### 4.2 Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, ingestion, skin and/or eye contact Symptoms: Irritation eyes, skin, respiratory system Target Organs: Eyes, skin, respiratory system, central nervous system (NIOSH, 2016)

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Fluorine and related compounds

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Excerpt from ERG Guide 151 [Substances - Toxic (Non-combustible)]: SMALL FIRE: Dry chemical, CO2 or water spray. LARGE FIRE: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Use water spray or fog; do not use straight streams. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2016)

## 5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 151 [Substances - Toxic (Non-combustible)]: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Containers may explode when heated. Runoff may pollute waterways. (ERG, 2016)

## 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

# SECTION 6: Accidental release measures

## 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

## 6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

## 6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

# SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

## 7.2 Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

### Occupational Exposure limit values

Component	Disulphur decafluoride			
CAS No.	5714-22-7			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Australia			0,01 (1)	0,1 (1)
Austria	0,025	0,25	0,05	0,5
Belgium			0,01	0,1
Canada - Ontario			0,01 (1)	
Canada - QuÃ©bec			0,01 (1)	0,1 (1)
Denmark	0,01	0,1	0,01	0,1
Finland	0,025	0,26	0,075 (1)	0,79 (1)
Ireland	0,025	0,25	0,075 (1)	0,75 (1)
Singapore			0,01	0,1
South Korea			0,01 (1)	0,1 (1)
Spain			0,01	0,1
Switzerland	0,01	0,1	0,01	0,1
USA - NIOSH			0,01 (1)	0,1 (1)

<b>Component</b>	Disulphur decafluoride			
<b>CAS No.</b>	5714-22-7			
<b>USA - OSHA</b>	0,025	0,25		
<b>United Kingdom</b>	[0,025]	[0,26]	[0,075]	[0,79]
	<b>Remarks</b>			
<b>Australia</b>	(1) Ceiling limit value			
<b>Canada - Ontario</b>	(1) Ceiling limit value			
<b>Canada - Québec</b>	(1) Ceiling limit value			
<b>Finland</b>	(1) 15 minutes average value			
<b>Ireland</b>	(1) 15 minutes reference period			
<b>South Korea</b>	(1) Ceiling limit value			
<b>USA - NIOSH</b>	(1) Ceiling limit value			
<b>United Kingdom</b>	The UK Advisory Committee on Toxic Substances has expressed concern that, for the OELs shown in parentheses, health may not be adequately protected because of doubts that the limit was not soundly-based. These OELs were included in the published UK 2002 list and its 2003 supplement, but are omitted from the published 2005 list.			

#### Biological limit values

no data available

## 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

## 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	Sulfur pentafluoride is a colorless volatile liquid or gas with an odor like sulfur dioxide. Mp: -92Â°C; bp: 29Â°C. Density: 2.08 g cm-3. Insoluble in water. Very toxic by inhalation.
<b>Colour</b>	Colorless liquid or gas (above 84 deg F)
<b>Odour</b>	Odor like sulfur dioxide
<b>Melting point/freezing point</b>	-55Â°C
<b>Boiling point or initial boiling point and boiling range</b>	29Â°C
<b>Flammability</b>	Noncombustible Liquid Nonflammable Gas
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	no data available
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	no data available
<b>Solubility</b>	Insoluble (NIOSH, 2016)
<b>Partition coefficient n-octanol/water</b>	no data available
<b>Vapour pressure</b>	561 mm Hg (NIOSH, 2016)
<b>Density and/or relative density</b>	2.08 at 32Â° F (NIOSH, 2016)
<b>Relative vapour density</b>	Relative density of gas: 8.77 (Air = 1)
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No rapid reaction with air No rapid reaction with water

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

SULFUR PENTAFLUORIDE is non-combustible. Decomposes when heated above 400Â°C in air to generate toxic and corrosive fumes of sulfur oxides and sulfur fluorides. Shows little chemical reactivity at room conditions. Acts as a strong oxidizing agent and as a fluorinating agent at elevated temperature as it begins to break down. Reacts rapidly with molten caustics such as NaOH or KOH.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

None reported

### 10.6 Hazardous decomposition products

Upon heating above 400 deg C, disulfur decafluoride decomposes into toxic and corrosive fumes (among others sulfur oxides, fluor and sulfur fluorides)

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- Inhalation: LC50 Mouse inhalation 1000 mg/cu m (10 min)
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

no data available

### Reproductive toxicity

no data available

### STOT-single exposure

no data available

### STOT-repeated exposure

no data available

### Aspiration hazard

no data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility in soil

no data available

### 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: UN3287 (For reference only, please check.) IMDG: UN3287 (For reference only, please check.) IATA: UN3287 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: TOXIC LIQUID, INORGANIC, N.O.S. (For reference only, please check.) IMDG: TOXIC LIQUID, INORGANIC, N.O.S. (For reference only, please check.) IATA: TOXIC LIQUID, INORGANIC, N.O.S. (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

### 14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Disulphur decafluoride	Disulphur decafluoride	5714-22-7	227-204-4
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Listed.

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## SECTION 16: Other information

#### Information on revision

Creation Date

July 15, 2019

**Abbreviations and acronyms**

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

**References**

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>