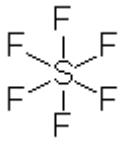
SAFETY DATA SHEET

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP/GHS) & 453/2010

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ENTERPRISE

1.1. Product identifier

Product Name:	Elegas
Chemical name	Sulphur hexafluoride
Synonyms:	Sulphur fluoride, elegas, sulphur hexafluoride
Chemical formula:	SF_6
Molecular weight:	146,05 g/mol
EC number	219-854-2 (EINECS)
REACH Registration No	01-2119458769-17-0002
C&L bulk notification	Reference number 02-2119708811-43-0000
CAS No	2551-62-4
Structural formula:	

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

1.2.1 Identified uses	Applied as refrigerant both separate and in mixture composition; in sprinklers as fire-extinguishing means Manufacture of substance Formulation/Blending Packaging/repackaging Manufacture of charged electrical transformers Recovery operations = Recycling / Reclamation / Destruction (waste) Plasma Etching in semiconductor industry Metal refining/ Cove Cas Electrical transformers Giass Fibre Production, Tracer Gas Wind Channels, Laboretory Use Most common technical function of substance (what it does): Heat transfer agent Laboratory chemicals Other: Fire extinguishing agent
1.2.2 Uses advised against	For industrial or professional use only

1.3 Details of the supplier of the safety data sheet

Manufacturer	Joint Stock Company «HaloPolymer Perm» ul. Lasvinskaya 98 614042, Russia, Perm Telephone +7(342) 250-61-50 Website www.halopolymer.com
Only representative of a non-Community manufacturer:	JSC «HaloPolymer Perm» (Submitting legal entity URALCHEM Assist GmbH) Johannssenstrasse 10 30159, Hannover, Germany Tel: +49 511 45 99 444

1.4 Emergency telephone:

	+7-342-282-85-45 (24 hours)
Great Britain	+44 (0) 203 394 9870 (24/7)
USA	1-877 271 7077

SECTION 2: HAZARDS IDENTIFICATION

Classification and labeling have been performed according to EU directives 1999/45/EC and 67/548/EEC as amended and adapted, and Regulation (EC) No. 1272/2008 (CLP/GHP)

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 Not classified as dangerous for supply/use.

2.1.2. Directive 67/548/EEC & Directive 1999/45/EC Not classified as dangerous for supply/use.

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard pictograms

GHS04

Signal word(s): **Warning**

Hazard statement(s):

H280: Contains gas under pressure; may explode if heated

Precautionary statement(s):

P 410 + P 403: Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

Contain gas under pressure; may explode if heated. Frostbite (cold burn). Asphyxiation. The product may decompose if heated to temperatures above (°C): 500. Thermal decomposition will evolve toxic and corrosive vapours.

2.4 For further information please refer to section 11 of this MSDS

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product identifier type in accordance with Article 18(2) of Regulation (EC) No 1272/2008	Identifier number	Identification name	Weight % content (or range)
CAS number	2551-62-4	Sulphur hexafluoride	>99,99

3.2 Mixtures

Not applicable.

3.3 Additional Information

None.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: Remove victim from contaminated area, strip off contaminated and breath-constricting clothing. Fresh air, warmth, rest. Strong tea or coffee. If breathing stops, administer “mouth-to-mouth” artificial respiration. If breathing is difficult, administer oxygen. **Get immediate medical attention!**

Eyes contact: Wash open eyes with plenty of RT water for at least 15 minutes. In case of frostbite injury, apply an aseptic dressing. **Obtain medical attention.**

Skin contact: Remove victim from contaminated area, strip off contaminated clothing and wash affected area thoroughly with water and soap. In case of frostbite injury, apply an aseptic dressing. **Obtain medical attention.**

Ingestion: Not required, as the exposure route is unlikely.

4.2 Most important symptoms and effects, both acute and delayed Asphyxiation. Feeling of suffocation. Frostbite. Redness. Pain.

4.3 Indication of immediate medical No special requirements

SECTION 5: FIRE-FIGHTING MEASURES

5.1 General features of fire hazard:	Elegas is non-flammable and non-explosive.
5.2 Suitable extinguishing media:	Extinguish fire using agent suitable for type of surrounding fire. Sulphur hexafluoride itself does not burn. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.[2]
5.3 Unsuitable extinguishing media:	None. [2]
5.4 Special hazards related to the material (substance) or the product itself, combustion products or gases produced:	Compressed or liquefied gases 126: At burning elegas forms toxic gases, incl. sulphur oxides and hydrogen fluoride. Vapors of liquefied gas are initially heavier than air and spread along ground. Containers (cylinders) can explode when heated. Ruptured cylinders may rocket. [2]
5.5 Protective equipment for fire-fighters:	Positive-pressure self-contained breathing apparatus. Structural firefighters' protective clothing will only provide limited protection. Fire-fighters shall be trained and equipped in accordance with requirements set in OSHA 1910.156. [2]
5.6 Other information:	Move containers from fire area if you can do it without risk. Fire involving tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire. Avoid water penetration into containers; icing may occur. [2]

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions:	Evacuate area. Ensure adequate ventilation. Shut off leaks if without risk. Ensure full personal protection (including respiratory protection) during removal of spillages.
6.2 Environment safety:	Environmental protection is assured by process regulatory compliance and equipment/containers hermetic sealing. Air of working zone is released into atmosphere after its purification. Waste water is led to industrial sewer system. Monitoring of product content in atmospheric air. Air of working zone is released into atmosphere after its purification. Waste water is purified in accordance with process regulations. [2]
6.3 Measures by overflowing (scattering):	Do not touch or walk through spilled material. Stop leak if you can do it without risk. Do not direct water at spill or source of leak. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. If possible, turn leaking containers so that gas escapes rather than liquid. Prevent entry into waterways, sewers, basements or confined areas. Allow substance to evaporate. Ventilate the area. Large spill: Consider initial downward evacuation for at least 500 meters (1/3 mile).

Refer to Section 13 for disposal information

SECTION 7: HANDLING AND STORAGE

7.1 Handling:	Process equipment, containers and pipelines shall be hermetically sealed.
7.1.1 General recommendations:	Work areas shall have ventilation. Personnel working with the product shall be instructed, trained and examined for safety methods of labor, fire safety and first aid methods. When sampling one shall wear protective goggles and gloves. Personnel working with the product shall have personal protective means.
7.1.2 Technical measures:	For the purpose of collective protection, process equipment, pipelines and transport containers shall be hermetically sealed. Work areas shall be equipped with general plenum-exhaust and local ventilation in the points of

possible product emission, assuring that work area air meets the normative document requirements.

7.1.3 Fire prevention measures: Fire safety is assured by process regulatory compliance and adherence to explosion and fire safety code. The product is a non-combustible substance. Cylinders containing the product can explode at fire, because the strength of their walls decrease at high temperature and the pressure of product contained increases. All extinguishing media can be used for fire-fighting in the presence of product.

7.2 Storage:

7.2.1 Conditions of storage: Store the product in warehouses, in accordance with the Rules for Design and Safe Operation of Pressure Vessels, away from heating facilities. Protect from direct sunlight. Store temperature is not specified.
Guaranteed shelf life – 5 years from the date of manufacture [3]

7.2.2 Incompatible materials: Disilane, sulphur vapours, hydrogen, carbon, carbon bisulfide, certain metals and strong oxidizing agents

7.2.3 Packing materials: Steel cylinders or import cylinders and containers rated for minimum 5 MPa working pressure. Filling is performed with allowance for cylinder volume and nominal working pressure. To prevent gas emission, the cylinders must be hermetically sealed. They also must be clean and evacuated. Blind nuts (stopper plugs) shall be mounted on the valve lateral nipples. These can be made of metal or other materials. Valves of 40 dm^3 cylinders shall be protected by caps. Cylinders for elegas are painted black, with “Elegas” yellow inscription. [3] Reusable cylinders shall be checked periodically. Cylinders for elegas transportation shall be checked every 10 years. Filling of pressure vessels is prohibited in the following cases: periodical check deadline is elapsed; stamps of a standard pattern are absent; valves are out of order; cylinder housing is damaged; cylinder color and inscription don’t comply with the product. [3]

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values

This data is recommended by scientific experience and is not established law.
1000 ml/m³
6100mg/m³
Limitation of exposure peaks:
Excursion factor 8
Duration 15 min, mean; 4 times per shift; interval 1 hour
Pregnancy: Group D
A classification according to groups A-C is not possible, because either there is no data available or the available data is insufficient for a final evaluation.
Preventive medical check-ups have to be offered if during activities involving the substance the worker is exposed to it. The employer shall request regular preventive medical check

Substance	Sulphur hexafluoride
CAS No.	2551-62-4

	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m³	ppm	mg/m³
Austria	1000	6000	2000	12000
Belgium	1000	6057		
Canada - Québec	1000	5970		
Denmark	1000	6000	2000	12000
European Union				
France	1000	6000		
Germany (AGS)	1000	6100	8000 (1)	48800 (1)
Germany (DFG)	1000	6100	8000	48800

Hungary				
Italy				
Poland		6000		
Spain	1000	6075		
Sweden	1000	6000		
Switzerland	1000	6000		
The Netherlands				
USA - NIOSH	1000	6000		
USA - OSHA	1000	6000		
United Kingdom	1000	6070	1250	7590

	Remarks
Germany (AGS)	(1) 15 minutes average value
Germany (DFG)	STV 15 minutes average value

8.1.2 Biological value: No information available

8.1.3 PNECs and DNELs: The DNEL of 77900 mg/m^3 corresponds to the concentration of 12725 ppm. This value is more than a factor 10 higher than the TLV for inert gases (1000 ppm) established by the AGGIH, indicating that the substance presents an extremely low toxicological concern.

8.2 Exposure control: Equipment leak-resistance. General plenum-exhaust and local ventilation. Monitoring of product content in workplace air. Before entering the room where elegas can present, check the content of oxygen in the air (19% minimum). No smoking. [2]

8.2.1 Control of the professional effect (MPC of working place): Everyday gravimetric monitoring of workplace air. Specialized control system shall be used at workplace. Preliminary and periodic medical inspections. [2] Personnel working with the product shall have PPM. [2]

8.2.2 Personal protection:

Respiratory protection: Where engineering controls are not fitted or inadequate wear suitable respiratory protective equipment. A suitable mask with filter type A (EN141 or EN405) may be appropriate

Hand protection: Appropriate chemical protective gloves.

Eye/face protection: Gas-proof chemical goggles and face shield. [2] Contact lenses should not be worn when working with elegas. [2]

Skin protection: Appropriate protective clothing, footwear, headgears preventing skin contact with elegas. All protective outfit should be clean, available each day, and put on before work. [2]

Hygiene measures: General industrial hygiene regulations are to be observed at workplaces: persons whose clothes is contaminated with elegas shall change into fresh clothes promptly; do not eat, smoke and drink at workplaces; wash hands before eating, smoking or going to the toilet; at the end of operation take a shower. [2]

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information:

Appearance	Gas. Shipped as a liquefied compressed gas. Condenses directly to a solid upon cooling.
Color	Colorless
Odor	Odorless

9.2. Important health, safety and environmental information:

pH value of an aqueous dispersion:	Not applicable
Boiling point :	- 63.9^{0}C (-83 ^{0}F) @ 1013 gPa
Flash point:	Not applicable
Flammability (solid, gas):	Non-flammable
Explosive properties:	Non-combustible substance
Oxidative properties:	Not applicable
Vapor pressure @ 25^{0}C:	21400 gPa
Liquefied gas density @ 20^{0}C :	1.391 g/cm^3 [1]
Solubility in other solvents, %:	Potassium hydroxide, ethanol, ether
Water solubility:	31 mg/l @ 25^{0}C (77^{0}F) 51.1 mg/l @ 20^{0}C (68^{0}F) и 1013 gPa
Partition coefficient:	
n-octanol/ water :	1.68
Viscosity	
gas	0.0156 mPa·c @ 101,325 кPa@ 25^{0}C(77^{0}F)
liquid	0.277 mPa·c @ 101,325 кPa@ 25^{0}C(77^{0}F)
Vapor density:	2.2 g/cm^3
Evaporation rate:	Not applicable

9.3 Other information:

Melting range :	- 50.8^{0}C (-59.4^{0}F) @ 2260 gPa
Critical temperature:	45.6^{0}C (114^{0}F)
Critical pressure:	37.1 atm
Evaporation heat:	9.6419 kJ/mol
Ozone depleting potential:	0

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:	Stable under normal conditions. Decomposes at temperatures above (^{0}C):500
10.2 Stability:	Stable under recommended storage and handling conditions indicated in Section No.7
10.3 Hazardous reaction:	Risk of explosion in contact disilane.
10.4 Conditions to avoid:	Direct sunlight. Condenses directly to a solid upon cooling.
10.5 Materials to avoid:	It is resistant to the action of carbon, copper or magnesium at red heat, and will react with boiling sodium. Reacts with sulphur vapors or hydrogen at 400^{0}C (752^{0}F). At reaction between disilane and elegas violent explosion takes place. Reacts with carbon and carbon disulphide at 500^{0}C (932^{0}F) and 400 atm.
10.6 Hazardous decomposition products:	Hazardous decomposition products of elegas in the presence of an arc discharge are thionyl fluoride, sulphur tetrafluoride and sulphur tetrafluoromonoxide, hydrogen fluoride; sulphur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Human toxicity evaluation:	SF6 is considered to be physiologically inert in the pure state. The major hazard of this gas is asphyxia resulting from displacing the necessary oxygen by this heavy gas.
11.1 Human toxicity evaluation:	SF6 is considered to be physiologically inert in the pure state. The major hazard of this gas is asphyxia resulting from displacing the necessary oxygen by this heavy gas.

11.2 Toxicokinetics, metabolism and distribution: Both at short-term and long-term exposure elegas was biologically inert and non-metabolizable.

11.3 Acute effects (acute toxicity, irritation, corrosion): DL_{50} 5790 mg/kg, intravenous, rabbits
CL_0 121.63 mg/m^3, inhalation, 6 h, rats

11.3.1 Exposure routes**:**

Eyes contact: Eyes irritation, burning, tearing. SF6 can cause severe burn of eyes.

Inhalation: Inhalation of sulphur hexafluoride can cause nose and throat irritation as well as lungs irritation declaring itself as cough and/or dyspnea.

Skin contact: On skin contact elegas can cause its irritation, redness and rash.

Ingestion: This exposure route is unlikely.

11.4 Chronic effects from long-term exposure: Dogs with elegas forced in pleural cavity were alive through several months.

11.4.1 Exposure routes:

Eyes contact: Cornea burn.

Inhalation: Shortness of breath and cyanosis can be observed. Decomposition products action can cause respiratory tract irritation and pulmonary edema. Peripheral tingling, slight excitement and altered hearing can develop. Displacement of oxygen can result in hypoxia, incoordination, mood disturbances, confusion, headache, and coma.

Skin contact: Direct contact with skin can cause frostbite injury.

Ingestion: Nausea, vomiting.

11.5 Sensitization: Sensibilizing action was not studied.

11.6 Carcinogenicity: No epidemiological data available.

11.7 Mutagenicity: Whereas SF6 has been already studied in this aspect, further investigations are necessary to evaluate its mutagenicity.

11.8 Reproductive toxicity: Reproductive toxicity was not studied.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity: ASIL atm air, max. single dose 20 mg/m^3
Elegas, whose extrapolated vapor pressure is $9.04X10^{+4}$ mm Hg at 25^0C($77\ ^0$F), is expected to exist solely as a gas in the ambient atmosphere. According to aquatic toxicity classification (WGK, Germany), elegas is ranked to Class 0 (non-pollutant in bulk).

12.2 Mobility: Elegas has high mobility in soil. Experimental data show that elegas does not absorb at all in soils.
Elegas is not expected to adsorb to suspended solids and sediment. Volatilization from water surfaces is expected to be quick, based upon the experimental Henry's Law constant of 4.52 atm-cu m/mole (SRC).
If released in the atmosphere, it will tend to remain close to the ground and be transported to earth by wet deposition.

12.3 Persistence and degrability: This substance is very stable in normal conditions. Its reactivity is very low.
Elegas volatilize from soil surface. Biodegradation data were not available**.**
Volatilization half-lives for a model river (1m depth)and model lake (1m depth)are 1.2 hours and 4.8 days, respectively.
With regard to chemical stability of this gas, the predicted atmospheric lifetime, in view of its reaction with OH, was determined to be over 10^5 years. Its estimated lifetime in mesosphere, allowing for reaction with free electrons, is approximately 4200 years. The predicted atmospheric lifetime after photolysis for elegas was determined to be greater than or equal to 600 years.

12.4 Biodegradation: An estimated BCF of 11 was calculated for elegas using an experimental log Kow of 1.68(1,SRC) and a recommended regression-derived equation. According to a classification scheme, this BCF suggests that bioconcentration in aquatic organisms is low (SRC).

12.5 Results of PBT assessment: 1 PBT – substances
- Stability (P-)
Elegas is not stable in environment.
- Bioaccumulation (B-)
Bioaccumulation index is under 2000. This substance is incapable to bioaccumulation.
- Toxicity (T-) Elegas does not match toxicity criteria.
2 vPvB – substances
Elegas is not considered as a very stable substance, which is highly capable to bioaccumulation.

12.6 Other harmful effects: Global warming potential (carbon dioxide =1)(GWP) is 24 900; ODP (ozone depletion potential) in reference to fluorotrichloromethane is 0. The influence of elegas on global warming is minimal due to its very low concentration. Not covered by Montreal Protocol.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal considerations: All operations with the product waste shall be conducted in a ventilated room, at a distance from open flame and weld works. Environmental emission reduction of elegas waste is performed by means of its thermal processing at a facility for fluorinated organic waste handling, which has an efficiency factor at least equal to 99.99%.

13.2 Packing disposal: Cylinders are reusable containers. Faulty tanks usage is prohibited. They shall be sent for repair or scrapped. Every 10 years the cylinders shall be checked. Nonreturnable tare (wooden boxes) is collected into containers and directed to burial locations approved by local authorities or for combustion in industrial waste incinerators.

Local, state, provincial, and national disposal regulations may be more or less stringent. Consult your attorney or appropriate regulatory officials for information on such disposal.

SECTION 14: TRANSPORT INFORMATION

14.1 Land transport:

ADR/RID class:	2
ADR/RID label:	2/2a

Caution

Placard:	20/1080
ADR/RID Classification code	2A
DOT (USA)/TDG (Canada) Class:	2
UN Number:	1080
DOT/TDG label:	Asphyxiating gas

Caution

Proper shipping name:	Sulphur hexafluoride 2, UN 1080

14.2 Sea transport:

IMO/IMDG code:	2.2
EmS:	Not applied.
Marine Pollutant:	No
Additional risk:	Not applied.
UN Number:	1080
Label:	Asphyxiating gas/2

Caution

Proper shipping name:	Sulphur hexafluoride 2.2, UN 1080

14.3 Air transport:

ICAO/IATA class::	2.2
UN Number:	1080
Label:	Asphyxiating gas/2+ for cargo traffic only

Caution

Proper shipping name: Sulphur hexafluoride 2.2, UN 1080

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

SECTION 15: REGULATORY INFORMATION

15.1 Chemical description:	Sulphur hexafluoride
15.2 Labelling:	Danger symbol: Compressed gas. Cylinders (tanks) can explode at heating.
US CERCLA:	Not a regulated chemical
Section 313 of the Emergence Planning and Community Right-To-Know Act (EPCRA):	Not a regulated chemical
US RCRA status:	Chemical code: none (not a RCRA waste)
CAA RMP:	Not a regulated chemical
EPCRA 302 EHS:	Not a regulated chemical
Montreal Protocol on Ozone Depleting Substances (adopted by USSR Government in November 1988):	Doesn't belong to ozone depleting substances.
Kyoto Protocol to the UN Framework Convention on Climate Change (ratified by the RF Law # 128-ФЗ of 4.11.2004:	Regulated as a greenhouse gas specified in Annex A of said Protocol.
New Jersey Department of Health and Senior Services:	RTK Substance number: 1760
German VwVwS (17.05.99):	According to aquatic toxicity classification (WGK, Germany), elegas is ranked to Class 0 (non-pollutant in bulk).
The Russian Federation Regulations:	Russian Federation Law «On Consumer's Right Protection», «Pollution Control Regulations», «Sanitary - Epidemic Control», «On Technical Regulation».

SECTION 16: OTHER INFORMATION

16.1 Classification of the substance or mixture	Not classified as dangerous for supply/use.
16.2 Suggested NFPA Rating:	None
16.3 Recommended restrictions on use:	For industrial or professional use only.
16.4 List of informational sources used in the preparation of the safety data sheet:	
2 www.toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB	
3 Data of the company	
16.5 Further information: Compiled in conformity with Annex II of EC Regulation 1907/2006 dd. 18.12.2006. Meets U.S. OSHA Hazard Communication Standard, 29CFR 19.10.1200.	

The information contained herein is based on the present state of our knowledge and does not therefore guarantee certain properties. Recipients of our product must take responsibility for observing existing laws and regulations.

Exposure Scenario

Information item	Proposed ES1
Product Identification	
Product name as it appears on SDS	Sulhur hexfluoride (elegaz)
Short title exposure scenario	
Internal name	Sulhur hexfluoride (elegaz)
Sector(s) of Use (SU)	SU 8: Manufacture of bulk, large scale chemicals (including petroleum products) SU 16: Manufacture of computer, electronic and optical products, electrical equipment SU 17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
Process Category(ies) (PROC)	PROC 1 Use in closed process, no likelihood of exposure, Industrial setting; PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3 Use in closed batch process (synthesis or formulation), Industrial setting; PROC 7: Industrial spraying PROC 8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities, Industrial or non-industrial setting; PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 22: Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting
Product OR Article category	
Product Category(ies). (PC)	PC_16_n PC 16 Heat Transfer Fluids PC 21: Laboratory chemicals
Article Category(ies). (AC)	AC_Not_Applicable
Environmental Release Category(ies) (ERC)	ERC 1: Manufacture of substances ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 6b: Industrial use of reactive processing aids ERC 7 Industrial use of substances in closed systems
Processes and activities	
Life Cycle Stage	Use
Optional: Provide additional information on processes and activities if needed	Liquefied gas Incombustible Non-toxic
Max. process temperature.	Service temperature is 200°C
Human health - Workers	
Type of use	Industrial

Physical form under conditions of use	Gas
Dustiness category for solid substances.	
Max. duration of inhalatory exposure.	15 minutes to 1 hour
Outdoor or indoor operation and application of Local Exhaust Ventilation (LEV)	Indoor with LEV
Use of respiratory protection equipment (RPE).	>95%
Use of dermal protective clothes and gloves.	Yes
Dilution factor of the product.	1
Consumer exposure	
Product Sub-category(ies)	
Article Sub-category(ies)	
Is the Product a spray?	No
Maximum fraction of the product in the consumer product used per consumer per event	1
Max. dermal contact area with skin	2 inside hands / one hand / palm of hands
Max. oral contact area with mouth	1 some fingertips
Maximum amount used per consumer per event	Not applicable
Optional : provide risk management measures if needed	Avoid spraying directly into eyes or nose
Environmental exposure	
Maximum amount of product used per year. If the amount used is variable, use the higher value as the maximum tonnage to be coverd.	1000
Use of sewage/waste water treatment plant (STP) for selected ERC	No
Max. number of emission days per year	100
Industry sector for spERC	
Industry sector spERC - will overwrite ERC in risk assessment	
Treatment of waste air	Thermal Oxidiser
Treatment of waste solids	
Treatment of waste liquids (not for waste water - see 6.2.4)	Incineration

Treatment of waste water	Not required
Pre-treatment	
Sewage/waste water treatment plant (STP) description:	
- give flow rates and describe capacity of STP	
- elimination rate in STP	
- dry weather river flow rate	
- describe sludge solids disposal	
Waste Management Measures	
Information on measures to control risk during production and use stages of substance, preparation or article	This material and its container must be disposed of in a safe way
Information on measures to control risk at the end of service life of substance, preparation or article	This material and its container must be disposed of in a safe way
Exposure prediction	
Do you have relevant measurement data available (worker exposure, environmental release, consumer safety) for the applicable PROC's, ERC's and PC's/AC's.	Yes
If yes, please attach this information. Please indicate the conditions under which the measurements have been taken.	OSHA PEL/8-Hr TWA = 1000ppm ACGIH TWA/8-Hr TWA = 1000 ppm Germany,MAC = 6100 mg/m3
Boundaries set by Exposure Scenario	
Please provide additional information that you deem relevant for this use, Operational Conditions and Risk Management Measures	Harmful by inhalation. Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer). In caseof insufficient ventilation, wear suitable respiratory equipment