

PPSU Filament

1. Chemical product and company information

a	Chemical product	PolyPhenylSulfone
b	Usage	Medisch, aerospace, automotive, chemische process industrie, etc
c	Chemical type	High performance thermoplastic
d	Company information	3D4Makers BV, Waarderweg 56, 2031 BP Haarlem, The Netherlands
e	Telephone number	+ 31 (0) 238200584

2. Hazards identification

a	Classification of the mixture	
	Chemical characterization	Mixture
	Classification (REGULATION (EC) No 1272/2008)	Not a hazardous substance or mixture.
	Classification (67/548/EEC, 1999/45/EC)	Not a hazardous substance or mixture.
b	Emergency Overview	Spilled material may create slipping hazard; Can burn in a fire creating dense, toxic smoke; Molten plastic can cause severe thermal burns; Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills, and fever; Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.
c	Label elements	
	No labelling	
d	Other hazards	
	- Hazardous decomposition products formed under fire conditions.	
	- Product dust may be irritating to eyes, skin and respiratory system.	

3. Composition/information on ingredients

a	Mixtures	
	Substance name:	Concentration:

Polyphenylsulfone >= 99%
 CAS-No.: 25608-64-4 /
 EC-No.: - / Index-No.: -

4. First aid measures

a Description of first aid measures

If inhaled	Remove to fresh air. If symptoms persist, call physician.
In case of skin contact	Cool skin rapidly with cold water after contact with hot polymer. Do not peel polymer from the skin. Obtain medical attention.
In case of eye contact	Rinse thoroughly with plenty of water, also under the eyelids. Flush eyes with running water for several minutes, while keeping the eyelids wide open. If eye irritation persists, consult a specialist.
If swallowed	Never give anything by mouth to an unconscious person. If a large amount is swallowed, get medical attention.

c Most important symptoms and effects, both acute and delayed

Inhalation	Mechanical irritation from the particulates generated by the product. Thermal decomposition can lead to release of hazardous gases and vapors
Skin contact	Mechanical irritation from the particulates generated by the product.
Eye contact	Mechanical irritation from the particulates generated by the product.
Ingestion	Low ingestion hazard.

c Indication of any immediate medical attention and special treatment needed

None

5. Firefighting measures

a Extinguishing media

Suitable extinguishing media	Powder, foam, water, water spray, carbon dioxide (CO₂)
Unsuitable extinguishing media	None

b Special hazards arising from the substance or mixture

Combustible material. In a fire, the polymer melts, producing droplets which may propagate fire. Once started, a fire will tend to self extinguish (see section 9). Risk of dust explosion. Heating can release hazardous gases.

c Advice for firefighters

In the event of fire, wear self-contained breathing apparatus. Fire fighters must wear fire resistant personnel protective equipment. Wear chemical resistant oversuit. Avoid dust formation.

6. Accidental release measures

a Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel Refer to protective measures listed in sections 7 and 8.

Advice for non-emergency personnel Refer to protective measures listed in sections 7 and 8.

b Environmental precautions

Do not flush into surface water or sanitary sewer system. Should not be released into the environment.

c Methods and material for containment and cleaning up

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Keep in properly labelled containers. Keep in suitable, closed containers for disposal. Treat recovered material as described in the section „Disposal considerations“.

d Reference to other sections

7. Handling and storage

a Precautions for safe handling

Take measures to prevent the build up of electrostatic charge. Ensure all equipment is electrically grounded before beginning transfer operations. Use only equipment and materials which are compatible with the product. To avoid thermal decomposition, do not overheat.

b Conditions for safe storage, including any incompatibilities

Storage Keep container closed. Keep away from heat and sources of ignition. Keep away from open flames, hot surfaces and sources of ignition. To avoid thermal decomposition, do not overheat. Avoid dust formation. Refer to protective measures listed in sections 7 and 8. Do not smoke.

c Specific end use(s)

For further information, please contact: Supplier

8. Exposure controls/personal protection

a Control parameters

Exposure limit values Particles not otherwise specified (PNOS)

US. ACGIH Threshold Limit Values 2007 time weighted average = 3 mg/m³
Remarks: as respirable particles

US. ACGIH Threshold Limit Values 2010 time weighted average = 10 mg/m³
Remarks: Inhalable fraction

b Exposure controls

Appropriate engineering controls	Provide local ventilation appropriate to the product decomposition risk (see section 10). Provide appropriate exhaust ventilation at places where dust is formed. Refer to protective measures listed in sections 7 and 8. Apply technical measures to comply with the occupational exposure limits.
Personal protective equipment	
Eye protection	Safety glasses with side-shields. Dust proof goggles, if dusty.
Hand protection	When handling hot material, use heat resistant gloves.
Skin and body protection	Long sleeved clothing
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use only respiratory protection that conforms to international/national standards. In case of dust clouds/fog/fumes, dust mask type P1. In case of decomposition (see section 10), face mask with combined type B-P2 cartridge.
Hygiene measures	When using, do not eat, drink or smoke. Wash hands before breaks and at the end of workday. Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Dispose of rinse water in accordance with local and national regulations

9. Information on basic physical and chemical properties

a General information

Appearance	Filament
Colour	Amber, white
Odour	odourless

b Important health safety and environmental information

pH	Not applicable
pKa	No data
Melting point/freezing point	220 °C, Softening point
Boiling point/boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	No data
Flammability (solid,gas)	No data
Flammability	The product is not flammable
Explosive properties	Risk of dust explosion
Upper explosion limit	No data available
Lower explosion limit	No data available

Vapour pressure	Not applicable
Vapour density	Not applicable
Density	No data
Relative density	No data available
Bulk density	No data
Solubilities	Negligible, water
Solubility/qualitative	No data
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	No data
Decomposition temperature	430 °C, extended period of exposure (ca 1 hour)
Viscosity	No data
Oxidizing properties	No data
c Other information	
Remakers	No data

10. Stability and reactivity

a Reactivity	No dangerous reaction known under conditions of normal use.
b Chemical stability	Stable under normal conditions. Hazardous Polymerisation/Polymerization: no
c Possibility of hazardous reactions	
Hazardous reactions	No dangerous reaction known under conditions of normal use.
d Conditions to avoid	Heat, flames and sparks. To avoid thermal decomposition, do not overheat. Avoid dust formation. The normal temperature for processing this resin exceeds the decomposition and/or ignition temperature of some other polymeric resins, such as polyacetal, polyvinyl chloride (PVC), polypropylene, etc. If PVC or any other resin with a decomposition temperature below 371 °C / 700 °F is molded or handled in your equipment, these materials can rapidly decompose and/or react with this resin at the temperatures used to process this resin. Inadvertent contamination of this resin with these materials from the material handling system or other equipment can result in a rapid, possibly violent release of decomposition fumes, when the contaminated material is brought to processing temperature. To avoid, thoroughly clean molding and other processing equipment prior to changeover and prevent cross contamination of material handling systems.
e Incompatible materials	Polymeric resins
f Hazardous decomposition products	Carbon monoxide, Sulphur oxides, Hydrocarbons, The release of other hazardous decomposition products is possible.

11. Toxicological information

a	Acute toxicity	
	Acute oral toxicity	No data available
	Acute dermal toxicity	No data available
	Acute inhalation toxicity	No data available
b	Skin corrosion/irritation	no data available
c	Serious eye damage/eye irritation	no data available
d	Sensitisation	no data available
e	Mutagenicity	no data available
f	Carcinogenicity	no data available
g	Toxicity for reproduction	no data available
h	Specific target organ toxicity - single exposure	Remarks: no data available
i	Repeated dose toxicity	no data available
j	Aspiration hazard	no data available
k	Other information	The product is biologically inert. Product dust may be irritating to eyes, skin and respiratory system. Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.

12. Ecological information

a	Toxicity	No data available
b	Persistence and degradability	
	Abiotic degradation	No data available
	Biodegradation	No data available
c	Bioaccumulative potential	No data available
d	Mobility in soil	No data available
e	Other adverse effects	
	Results of PBT and vPvB assessment	No data available
f	Other adverse effects	The product is biologically inert. Ingestion of solids may cause harm to wildlife due to intestinal mechanical blockage or starvation from false feeling of satiation.

13. Disposal considerations

- | | | |
|----------|--------------------------------|---|
| a | Waste treatment methods | In accordance with local and national regulations. Refer to manufacturer/supplier for information on recovery/recycling. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Can be landfilled, when in compliance with local regulations. |
| b | Contaminated packaging | Empty containers. Dispose of as unused product |

14. Transport information

- | | | |
|----------|--|----------------------|
| a | International transport regulations | |
| b | Sea (IMO/IMDG) | Not regulated |
| c | Air (ICAO/IATA) | Not regulated |
| d | European Road/Rail (ADR/RID) | Not regulated |
| e | Inland waterway transport | Not regulated |

15. Regulatory information

- | | | |
|----------|---|-------------------------------------|
| a | Safety, health and environmental regulations/legislation specific for substance or mixture | |
| | <ul style="list-style-type: none"> - Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, as amended. - Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), as amended. - European Waste Catalogue - Waste codes should be assigned by the user based on the application for which the product was used. | |
| b | Notification status | |
| | USA. Toxic Substances Control Act (TSCA) | Listed on inventory |
| | EU list of existing chemical substances (EINECS) | In compliance with inventory |
| | Australia. Inventory of Chemical Substances (AICS) | Listed on inventory |
| | Japan. Inventory of Existing & New Chemical Substances (ENCS) | Listed on inventory |
| | Korean Existing Chemicals List (ECL) | Listed on inventory |

Philippine. Inventory of Chemicals and Chemical Substances (PICCS)	In compliance with inventory
Inventory of Existing Chemical Substances (China) (IECS)	Listed on inventory
Canada. Domestic Substances List (DSL)	Listed on inventory
b Chemical safety assessment	No data

16. Other Informaton

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.