Safety Data Sheet

PPS-CF filament

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1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

1.1 Identification of the substance / preparation

Product name: Torofil PPS-CF

1.2 Application

Use of the substance or mixture: Filaments for FDM 3D printing
Recommended restrictions on use: All others not mentioned above

1.3 Manufacturer / Supplier:

Company: Michael Handwerker
Address: Marie-Curie-Str. 6
85055 Ingolstadt
Germany
VAT-ID: DE353251963
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2 HAZARDS IDENTIFICATION

2.1 Classification

The mixture does not meet the criteria for classification in any of the hazard classes and categories according to the Regulation of the European Parliament and of the Council (EC) No 1272/2008 of December 16, 2008 on classification, labelling and packaging of substances and mixtures (Official Journal of the EU L 353 of 31.12.2008, as amended).

2.2 Label elements

Pictograms: not applicable
Signal word: not applicable
Hazard statements: not applicable
Precautionary statements: not applicable
Supplementary hazard information: not applicable
Unique identifier of active form (UFI): not applicable

2.3 Other hazards

Potential health effects
Acute exposure: The melted product can cause serious burns
Inhalation: Vapors released due to thermal decomposition may cause irritation of respiratory system. Toxic effect may occur.
Skin contact: Contact with hot material may be irritation to skin
Eye contact: Contact with ho material may be irritation to eyes

Environmental effects
Polymer is inert, but not biodegradable on the basis of the structure.
Physical and chemical hazards
During thermal decomposition toxic and corrosive products are released.
Decomposition products: See Section 10.
The mixture does not contain substances with PBT and vPvB properties or substances with endocrine disrupting properties included in the list established pursuant to Article 59 (1) in accordance with the criteria set forth in Regulation 2017/2100/EU or Regulation 2018/605/EU in concentrations equal to or greater than 0.1%. The mixture does not contain substances present in nano form.

3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Not applicable

3.2 Mixture

The mixture does not contain in concentrations equal to or greater than:
(a) 1 % by weight:
(i) substances presenting a health or environmental hazard within the meaning of Regulation (EC) No.1272/2008; or
(ii) substances for which EU maximum allowable concentrations have been established in the working environment;
(b) 0.1% by weight for substances meeting any of the following criteria:
- PBT according to the criteria in Annex XIII,
- vPvB in accordance with the criteria in Annex XIII,
- substances included in the list established in accordance with Article 59 (1) for reasons other than the hazards listed in paragraph (a) such as endocrine disrupting properties,
- identified as having endocrine disrupting properties in accordance with the criteria set forth in Delegated Regulation (EU) 2017/2100 or Regulation (EU) 2018/605;
(c) 0.1% of a substance classified as a category 1 or 1B skin sensitizer, a category 1 or 1B respiratory sensitizer, or a category 2 carcinogen;
(d) 0.01% of a substance classified as a category 1A skin sensitizer or a category 1A respiratory sensitizer;
(e) 0.1 specific concentration limit of a substance classified as a skin sensitizer or respiratory sensitizer with a specific concentration limit;
(f) 0.1% of a substance classified as a reproductive toxicant of category 1A, 1B or 2 or affecting lactation, or harmful effects on breastfed children.

4 First aid measures

4.1 Description of first aid measures

First aider needs to protect himself. Remove from exposure. Keep the victim at rest. Do not leave the victim unattended.

Eye contact: In the case of contact with molten product, immediately rinse eyes and eyelids with plenty of water for more than 10 minutes. In case of smoke irritation, wash the eyes with water until the irritation disappears. Get medical attention.

Ingestion: In the case of contact with molten product, rinse mouth with cool water. Get medical attention.

Skin contact: In the case of contact with molten product, wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Do not tear off the solid product from the skin. Get medical attention.

Inhalation: In the case of accidental inhalation of vapors or decomposition products, move to fresh air. If symptoms occur, get medical attention

4.2 Most important symptoms and effects, both acute and delayed

The melted product can cause severe burns.
Inhalation of processing vapors: Can cause skin, eye and respiratory tract irritation

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Maintain vital functions.

5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: powder, foam, CO2, water mist, dispersed water jet.

5.2 Special hazards arising from the substance or mixture

During combustion, harmful substances including incomplete combustion products like carbon monoxide and toxic substances formed by thermal decomposition of the polymer may be emitted. Do not inhale smoke and vapors resulting from combustion. See section 10.6 for hazardous decomposition products.

5.3 Advice for firefighters

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus and personal protective equipment.
Additional information: Seal off endangered area. Remove persons to safety. Do not allow water used for extinguishing to enter drains, grounds, or waterways.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid the contact with the molten material.
In case of overheating (due to rise of temperature, fumes or smoke are formed), cool the melt in a water bath. Do not breathe the vapors. Wear appropriate protective equipment. Take off contaminated clothing immediately and wash it before reuse. Provide adequate ventilation. Provide a conveniently located respiratory protective device

6.2 Environmental precautions

Prevent from entering drains, watercourses, groundwater and surface water.

6.3 Methods and material for containment and cleaning up

Protect from further release, after cooling or cooling of hot elements collect mechanically and place in a properly labeled waste container. Transfer for disposal to an authorized waste collector. Wash the surface where the release occurred. Collect hot and warm elements with heat-protective gloves in accordance with EN407.

7 Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: In case of melting: Do not overheat to avoid thermal decomposition. Make sure the air exchange is sufficient and the working rooms are air suctioned. Avoid exceeding WEL threshold levels. Do not breathe vapors. Wear appropriate protective equipment. Take off contaminated clothing immediately and wash it before reuse. After work, wash hands and face. In thermal processing: Risk of skin burns. Avoid the build-up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with good manufacturing practice.

7.3 Specific end uses

No information is available.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limit values: Not relevant
Derived No Effect Level (DNEL): This information is not required.
Predicted No Effect Concentration: This information is not required

8.2 Exposure controls

In case of melting: Provide good ventilation or exhaust system or work with completely self-contained equipment.

Individual protection measures, such as personal protective equipment
Eye protection: Wear glasses or goggles when handling product in molten state. Wear face shield.
Hand protection: use suitable heat protective gloves according to EN 407 Protective gloves and other hand protection equipment against heat hazards (heat and/or fire).
Skin and body protection: Wear suitable protective clothing. Take off contaminated clothing immediately and wash it before reuse. Do not eat, drink or smoke when using. Before breaks and after work, wash hands and face. Safety shower and eye wash station should be easily accessible to the work area.
Respiratory protection: if adequate exhaust ventilation is not provided or if the occupational risk assessment of the job indicates the need to do so, use a mask/semi-mask with a filter against organic vapors and/or dust/aerosols. Recommended type of protection for vapors: minimum A. Recommended type of protection for dust/aerosols: P2 filter. When using combined protection against vapors dust/aerosols, use AP2 filter-absorber according to EN14387 – Respiratory protective equipment - Respirators and filter-absorbers - Requirements, testing, marking

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. See Section 6.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

State of matter:	Solid
Color:	Depending on the used pigment
Odor:	Low odor
Melting/freezing point:	> 280 °C
Boiling point or initial boiling point and boiling range:	Not determined
Flammability:	Not flammable
Lower and upper explosion limit:	No data available
Flash point:	> 400 °C
Auto-ignition temperature:	no data available
Decomposition temperature:	> 340 °C
pH:	Not applicable
Kinematic viscosity:	Not determined
Solubility:	Does not dissolve in water
Partition coefficient n-octanol/water (log value):	Not applicable to mixtures
Vapor pressure:	Not applicable
Density or relative density:	1.31 g/cm3
Relative vapor density:	Not applicable
Particle characteristics:	Not applicable, does not occur in nanoform.

9.2 Other information

No additional information available.

10 STABILITY AND REACTIVITY

10.1 Reactivity

The mixture is not reactive under normal conditions of use and storage.

10.2 Conditions to avoid

Do not cause thermal decomposition, see SECTION 9: Physical and chemical properties.

10.3 Incompatible materials

None known.

10.4 Hazardous decomposition products

During combustion, harmful substances may be released, including products of incomplete combustion such as carbon monoxide and toxic substances formed by thermal decomposition of the polymer, e.g. carbon monoxide, nitrogen oxides, other hydrocarbons (aromatic and aliphatic), sulfur oxides, hydrogen sulfides, carbon disulfide, phenol, formaldehyde. Do not inhale fumes and vapors resulting from fire or thermal decomposition

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

Acute toxicity (oral): According to its composition, this product should not be harmful in normal conditions of use.
Acute toxicity (dermal): According to its composition, this product should not be harmful in normal conditions of use.
Acute toxicity (inhalative): Inhalation of vapors due to thermal decomposition. Risk of irritation of respiratory system. Toxic effects cannot be excluded.

Local effects (corrosion/irritation/serious eye damage):

Skin contact: According to its composition, this product can be slightly or not irritating to skin. Contact with the product, when handled at high temperatures, can cause serious burns. At high temperature, products of thermal decomposition can be irritating to skin.
Eye contact: According to its composition, this product can be slightly or not irritating to skin. Contact with the product, when handled at high temperatures, can cause serious burns. At high temperature, products of thermal decomposition can be irritating to eyes.

Respiratory or skin sensitization:

Inhalation: No data available.
Skin contact: According to its composition, this product can be considered as not a skin sensitizer, no reported effect on man in industry.

CMR effects:

Mutagenicity: According to its composition, this product should not be harmful in normal conditions of use, it contains no ingredient considered as genotoxic.
Carcinogenicity: According to its composition, this product should not be harmful in normal conditions of use.
Reproductive toxicity: Lack of data.
Fertility: According to its composition, this product should not be harmful in normal conditions of use.
Fetal development: According to its composition, this product should not be harmful in normal conditions of use.

Specific target organ toxicity

Single exposure: Dust inhalation. Risk of irritation of respiratory system.
Repeated exposure: According to its composition, this product should not be harmful in normal conditions of use.
Aspiration hazard: Not applicable

12 ECOLOGICAL INFORMATION

12.1 Toxicity

The mixture does not contain substances classified in this hazard class. Based on available data, the classification criteria are not met.

12.2 Persistence and degradability

Product is not biodegradable. Inert polymer.

12.3 Bioaccumulative potential

Bioaccumulation is not expected due to consistency and insolubility in water.

12.4 Mobility in soil

It does not dissolve in water. Due to its form (solid), it is not mobile in soil, does not penetrate into groundwater, and is not absorbed in soil.

12.5 Results of PBT and vPvB assessment

The mixture does not contain substances with PBT and vPvB properties.

12.6 Endocrine disrupting properties

The mixture does not contain substances with endocrine disrupting properties included in the list established pursuant to Article 59 (1) in accordance with the criteria set forth in Regulation 2017/2100/EU or Regulation 2018/605/EU in concentrations equal to or greater than 0.1%

12.7 Other adverse effects

Avoid the discharge into the environment.

13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Handling of the product

Do not dispose of in sewers and watercourses. Consider reuse. Recover or dispose of the waste in authorized incinerators or waste disposal plants in accordance with applicable regulations.
07 02 13 - Plastic waste

Handling of packaging

Hand over the packaging for disposal to an authorized waste collector, in accordance with the waste code assigned at the place of manufacture. Recycling is preferred.
07 02 13 - Plastic waste
15 01 01 - Paper and cardboard packaging

14 Transport Information

14.1 UN number

Not regulated for transport.

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class

Not applicable

14.4 Packaging group

Not applicable

14.5 Environmental hazard

Not applicable

14.6 Special precaution for user

Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH):

- Substances subject to authorization procedure – Annex XIV to Regulation (EC) No 1907/2006 (REACH): None of the components of the product is listed.
- Substances of Very High Concern (SVHC) – Candidate List: None of the components of the product is listed
- Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures, and articles – Annex XVII to Regulation (EC) No 1907/2006 (REACH): None of the components of the product is listed

16 OTHER INFORMATION

Explanation of abbreviations and acronyms used in the safety data sheet:
PBT - Persistent, Bioaccumulative, and Toxic substance.
vPvB - Very Persistent and Very Bioaccumulative substances.

The information provided on the SDS is a correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.