

Safety Data Sheet

by Commission Regulation (EC) No 830/2015 (REACH)

Fluorodur



Revision date: 11. 12. 2020/1

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

1.1 Identification of the substance / preparation

Product name: Fillamentum Fluorodur

1.2 Application

Use of the substance or mixture: Filaments for 3D printing
Recommended restrictions on use: Designed for professional / industrial use.

1.3 Manufacturer / Supplier:

Company: Fillamentum Manufacturing Czech s.r.o.
Address: nám. Míru 1217
768 24 Hulín
Czech Republic
ID: 29233275
Website: www.fillamentum.com
Telephone: +420 720 060 947
E-mail: helpdesk@fillamentum.com

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification

The substance or mixture is not hazardous according to Regulation (EC) No 1272/2008.

2.2 Label elements

The substance or mixture is not hazardous according to Regulation (EC) No 1272/2008.

2.3 Other hazards

Potential health effects:

Acute exposure:

Inhalation: Temperatures over 350 °C cause thermal decomposition that can provoke pseudo-flu condition with fever and muscular pains (polymer fever).
Skin contact: The melted product can cause serious burns. At high temperatures, products of thermal decomposition can irritate the skin.
Eye contact: Contact with hot 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.

Results of PBT and vPvB assessment: No data available

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Not applicable

3.2 Mixture

Chemical nature of the mixture: Fluoropolymers.

Chemical name & REACH Registration Number	CAS No. EC no	Content [weight %]	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Zinc oxide (01-2119463881-32) (N° ANNEX: 030-013-00-7)	1314-13-2 215-222-5	≤ 0,1 %	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor Acute = 1 M-Factor Chronic = 1

See chapter 14 for Proper Shipping Name.

See the text of the regulation for applicable exceptions or provisions.

SECTION 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.

General advice: In the case of contact with molten product, shower immediately, rapidly take off all contaminated clothing, wash abundantly with water.

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.

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.

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

Inhalation: In the case of accidental inhalation of vapours or decomposition products, move to fresh air. Get medical attention even if without initial problems.

4.2 Most important symptoms and effects, both acute and delayed

The melted product can cause severe burns.

If thermal decomposition of this product occurs releasing HF, additional first aid measures are required.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Foam, water spray, dry powder, carbon dioxide (CO₂).

Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture

Thermal decomposition giving toxic and corrosive products: carbon oxides, hydrogen fluoride

Carbon oxides, Hazardous organic compounds, Acrylates, Methacrylates

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5.3 Advice for firefighters

Special protective equipment for fire-fighters:

Wear self-contained breathing apparatus and personal protective equipment.

Specific methods:

Ensure a system for the rapid emptying of containers. In case of fire, remove exposed containers.

Additional information:

Seal off endangered area. Remove persons to safety. Do not allow water used for extinguishing to enter drains, grounds, or waterways.

SECTION 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. Remove all sources of ignition. Do not breath the vapours. Do not smoke.

Avoid contact with skin and eyes. 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

Do not release into the environment. Prevent from entering into drains or water courses.

6.3 Methods and material for containment and cleaning up

Throw into appropriate disposal containers. Recycle or dispose of in compliance with current legislation.

Recovery: Recover the product. This product can cause the floor to be slippery.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Technical measures/Precautions

Provide appropriate exhaust ventilation at machinery. Provide showers, eyebaths. Provide electrical earthing of equipment. Provide water supplies near the point of use.

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. Do not breathe vapours.

In thermal processing: Risk of skin burns. Avoid the build-up of electrostatic charge.

Hygiene measures

When using do not eat, drink, or smoke. In case of melting: Avoid contact with skin and eyes and inhalation of vapours. After work, wash hands and face. Wear appropriate protective equipment. Take off contaminated clothing immediately and wash it before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Take precautionary measures against static discharges.

Storage

Keep the package well closed and dry in a dry and well-ventilated place. Protect from heat. Keep away from food, drink and animal feeding stuffs.

Storage temperature: < 40 °C

Incompatible products: Titanium dioxide, Silica (Glass fibre), Boron oxide, strong bases

7.3 Specific end uses

No information is available.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limit values: Not relevant

Products of decomposition: Hydrogen fluoride

Source	Date	Value type	Value [ppm]	Value [mg/m ³]	Remarks
EU ELV	12/2009	TWA	1,8	1,5	Indicative value
EU ELV	12/2009	STEL	3	2,5	Indicative value
ACGIH (US)	02/2012	SKIN	-	-	Can be absorbed through the skin.
ACGIH (US)	02/2012	Ceiling	2	-	as Fluorine (F)
ACGIH (US)	02/2012	TWA	0,5	-	as Fluorine (F)

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: Gloves, when handling product in molten state.

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: In case of exceeded concentration, wear self-contained breathing apparatus.

Environmental exposure controls

See Section 6.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical Appearance: Solid, natural filament

Odour: none

pH: Not relevant

Evaporation rate: Not relevant

Melting point/freezing point: 156-170 °C

Boiling point: Not relevant

Flash point: Not applicable

Auto-ignition temperature: No data available

Decomposition temperature: > 350 °C

Flammability (solid, gas): No data available

Vapour pressure: Not relevant

Vapour density: Not applicable

Density: 1,79 g/cm³

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Solubility:	
Water solubility	Insoluble
Dynamic viscosity:	Not applicable
Kinematic viscosity:	Not applicable
Explosive properties:	Not relevant (due to its physical form)
Oxidising properties:	Not relevant (due to its chemical structure)

9.2 Other information

Solubility in other solvents:	Soluble in: Dimethylacetamide Dimethylformamide
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SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable at ambient temperature and under recommended conditions of storage and use.

10.3 Possibility of hazardous reactions

None under normal conditions of use.

10.4 Conditions to avoid

Keep away from heat and sources of ignition.

10.5 Incompatible materials

Titanium dioxide, silica, strong bases, boron oxide. At high temperature: risk of violent reaction (decomposition).

10.6 Hazardous decomposition products

Thermal decomposition:

Decomposition temperature > 350 °C

Thermal decomposition giving toxic and corrosive products: Hydrogen fluoride, carbon oxides

Carbon oxides, Hazardous organic compounds, Acrylates, Methacrylates

SECTION 11: TOXICOLOGICAL INFORMATION

All the data available on this product or the components quoted in Section 3 and/or the analogue substances or metabolites have been taken into account for the hazard assessment.

11.1 Information on toxicological effects

Acute toxicity:

Acute toxicity (oral):

Polymer can be considered as: Slightly harmful by ingestion

Acute toxicity (inhalation):

Polymer can be considered as: Slightly harmful by inhalation

Inhalation of vapours due to thermal decomposition.

Thermal decomposition over 350 °C can provoke pseudo-flu condition with fever and muscular pains (polymer fever)

HYDROGEN FLUORIDE

At high vapour/mist concentrations, Severely irritating to respiratory system, Risk of pulmonary oedema, Delayed effects possible.

- in animals: LC50/10 min rat: 3,15 mg/l

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

Skin contact:

Polymer can be considered as: 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.

HYDROGEN FLUORIDE

corrosive to skin

general failure if serious burns

delayed effects

secondary necrosis of tissues

- in animals: corrosive to skin (OECD Test Guideline 404, rabbit) (5 %)

Eye contact:

Polymer can be considered as: Slightly or not irritating to eyes

Risk of eye irritation. At high temperature, products of thermal decomposition can be irritating to eyes.

Respiratory or skin sensitisation:

Inhalation:

No data available.

Skin contact:

Based on available data, the classification criteria are not met.
Possible cross sensitization with other acrylates and methacrylates.

CMR effects:

Mutagenicity:

Contains no ingredient listed as a mutagen.

Carcinogenicity:

Polymer: No particular problems for man.

Reproductive toxicity:

Fertility:

Polymer: No particular problems for man.

Fetal development:

Polymer: No particular problems for man.

Specific target organ toxicity

Single exposure (inhalation):

Dust inhalation. Risk of irritation of respiratory system.

At high temperature, products of thermal decomposition can be irritating to respiratory system.

Repeated exposure:

Polymer: No particular problems for man

Polyvinylidene fluoride

Studies of prolonged administration in animals have not shown sub-chronic or chronic toxic effects.

Aspiration hazard:

Not relevant.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Acute toxicity for fish:

Based on the available information, it is not possible to conclude on the hazard potential of this mixture.

ZINC OXIDE

LC50 > 1,55 mg/l

species: *Danio rerio* (the zebrafish)

exposition time: 96 hours

method: OECD Test Guideline 236

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Acute toxicity for aquatic invertebrates:	Based on the available information, it is not possible to conclude on the hazard potential of this mixture. ZINC OXIDE EC50 > 1 mg/l (pH 7,7) species: <i>Daphnia magna</i> (Water flea) exposition time: 48 hours
Acute toxicity for aquatic plants:	Based on the available information, it is not possible to conclude on the hazard potential of this mixture. ZINC OXIDE EC r50 > 0,136 mg/l species: <i>Pseudokirchneriella subcapitata</i> exposition time: 72 hours method: OECD Test Guideline 201
Acute toxicity for microorganisms:	ZINC OXIDE NOEC > 100 mg/l species: <i>Pseudomonas fluorescens</i> exposition time: 16 hours
Long-term toxicity to aquatic invertebrates:	ZINC OXIDE NOEC > 0,058 mg/l species: <i>Daphnia magna</i> (Water flea) exposition time: 21 days method: OECD Test Guideline 211
Long-term toxicity for aquatic plants:	ZINC OXIDE NOEC > 0,024 mg/l species: <i>Selenastrum capricornutum</i> exposition time: 72 hours method: OECD Test Guideline 201

12.2 Persistence and degradability

Product is not biodegradable. Inert polymer.

12.3 Bioaccumulative potential

No additional information available.

12.4 Mobility in soil

No additional information available.

12.5 Results of PBT and vPvB assessment

No additional information available.

12.6 Other adverse effects

Avoid the discharge into the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Recommendation:

Recycling or special waste incineration.

Additional information:

The user's attention is drawn to the possible existence of specific European, national or local regulations regarding disposal. Clean empty packing can be re-used. Packaging that can't be re-used should be recycled if possible.

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SECTION 14: TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: REGULATORY INFORMATION

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

15.1.1 EU-Regulations

Contains no REACH substances with Annex XVII restrictions

15.1.2 National regulations

No additional information available.

15.2 Chemical safety assessment

This information is not required.

INVENTORIES

EINECS:	Conforms to
TSCA:	Conforms to
DSL:	All components of this product are on the Canadian DSL
IECSC (CN):	Conforms to
ENCS (JP):	Conforms to
ISHL (JP):	Conforms to
KECI (KR):	Conforms to
PICCS (PH) :	Conforms to
AICS:	Conforms to
NZIOC:	Does not conform
TSCA 12B:	No data available

SECTION 16: OTHER INFORMATION

Full text of H-, EUH-statements:

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

The information is published in the best knowledge and information of the company. The final usage of the product must be assessed by the user. The company is not responsible for any risks caused by incorrect handling or processing.