



**MATERIAL SAFETY DATA SHEET**  
according to Regulation (EU) No. 1907/2006

**PET CF by Innofil3D BV**

## 1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Trade name	: PET CF
Chemical name	: Carbon fiber reinforced Polyethylene Terephthalate
Chemical family	: Thermoplastic Copolymer
Use	: Monofilament for 3D-printing
Company	: Innofil3D BV
Street address	: Eerste Bokslotweg 17
Postal code and city	: 7821 AT Emmen
Country	: The Netherlands
Telephone number	: +31 (0) 591 820 389

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2	: H319: Causes serious eye irritation.
Respiratory sensitization, Category 1	: H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization, Category 1	: H317: May cause an allergic skin reaction.

### 2.2 Label elements

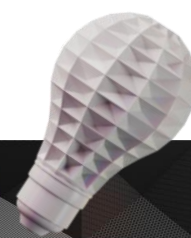
Labelling (REGULATION (EC) No 1272/2008)

The dangerous properties of this product are distinctly reduced because the dangerous components are embedded into a polymeric matrix and cannot be released if used properly. Consequently labelling of this substance is not necessary (according to CLP regulation 1272/2008/EC, Annex I, Part 1.3.4.).

Hazard pictograms



Signal word : Danger



Hazard statements	: H317	May cause an allergic skin reaction.
	H319	Causes serious eye irritation.
	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<u>Precautionary statements</u>		
Prevention	: P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
	P280	Wear protective gloves/eye protection/face protection.
	P284	Wear respiratory protection.
Response:	: P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
	P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
Hazardous components which must be listed on the label	: Benzene-1,2:4,5-tetracarboxylic dianhydride.	

### 2.3 Other Hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

The hazards of this product are significantly reduced since the hazardous material/s is/are enclosed in a polymer matrix and when used as directed will not be released.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2 Mixtures

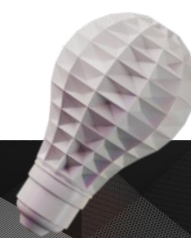
#### Hazardous components

Chemical name	: Benzene-1,2:4,5-tetracarboxylic dianhydride.
CAS Number   EC Number	: 89-32-7   201-898-9
Concentration (w/w%)	: > = 1 - < 3
Classification	: Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1; H317

## 4. FIRST-AID MEASURES

### 4.1 Description of first aid measures

General advice	: Move out of dangerous area. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice. Give oxygen or artificial respiration if needed.
If inhaled	: Move to fresh air. Get medical attention.



- |                         |   |  |
|-------------------------|---|--|
| In case of skin contact | : | Do NOT use solvents or thinners. Wash off with soap and water. Get medical attention.                                    |
| In case of eye contact  | : | Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Keep eye wide open while rinsing. |
| If swallowed            | : | Get medical attention.   |

#### **4.2 Most important symptoms and effects, both acute and delayed**

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|----------|---|---------------------------|
| Symptoms | : | No information available. |
|----------|---|---------------------------|

#### **4.3 Indication of any immediate medical attention and special treatment needed**

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|-----------|---|---------------------------|
| Treatment | : | No information available. |
|-----------|---|---------------------------|

### **5. FIRE-FIGHTING MEASURES**

#### **5.1 Extinguishing media**

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|--------------------------------|---|--|
| Suitable extinguishing media   | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
| Unsuitable extinguishing media | : | High volume water jet.   |

#### **5.2 Special hazards arising from the substance or mixture**

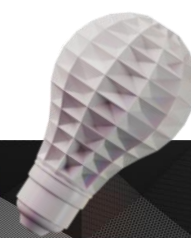
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|---------------------------------------|---|--|
| Specific hazards during fire-fighting | : | Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Do not use a solid water stream as it may scatter and spread fire. Build-up of dangerous/toxic fumes possible in cases of fire/high temperature. |
| Hazardous combustion products         | : | Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Sulphur compounds. Aldehydes. Acids.  |

#### **5.3 Advice for firefighters**

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|---|---|--|
| Special protective equipment for firefighters | : | Exposure to decomposition products may be a hazard to health. In the event of fire, wear self-contained breathing apparatus. |
| Further information                           | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.                      |

### **6. ACCIDENTAL RELEASE MEASURES**

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|----------------------|---|--|
| Personal precautions | : | Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Avoid contact with skin, eyes and clothing. Avoid breathing dust. Avoid inhalation of vapor or mist. Contaminated surfaces will be extremely slippery. Tread recovered material as described in the section "Disposal considerations". |
|----------------------|---|--|



Environmental precautions	: Should not be released into the environment. Do not allow contact with soil, surface or ground water. Avoid dispersal or dust in air (i.e., clearing dust surfaces with compressed air).
Methods for cleaning up	: Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dispersal of dust in air (i.e., clearing dust surfaces with compressed air). Avoid dust formation.
Reference to other sections	: For personal protection see section 8. For disposal considerations see section 13.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

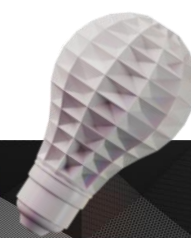
Advice on safe handling	: Provide for appropriate exhaust ventilation and dust collection at machinery. The material can accumulate static charge and can therefore cause electrical ignition. Minimize dust generation and accumulation. Dust must be collected and disposed of carefully. Wear personal protective equipment. Do not breathe vapors/dust.
Advice on protection against fire and explosion	: Take measures to prevent the build up of electrostatic charge. During processing, dust may form explosive mixture in air. Keep away from heat and sources of ignition. Normal measures for preventive fire protection.
Hygiene measures	: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hand before breaks and immediately after handling the product. Regular cleaning of equipment, work area and clothing. Keep away from food and drinks. General industrial hygiene practice. When using do not eat, drink or smoke.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	: Keep containers tightly closed in a dry, cool and well ventilated place.
Further information on storage conditions	: Keep away from heat and sources of ignition. Keep away from direct sunlight. Avoid moisture.
Advice on common storage	: Keep away from food, drinks and animal feedingstuffs.
Storage class (TRGS 510)	: 11, Combustible Solids.

### 7.3 Specific end use(s)

Specific use(s)	: For further information, refer to the Technical Data Sheet.
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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

Occupational Exposure Limits

Components	CAS-No.	Value type (form of exposure)	Control parameters	Basis
Carbon black	1333-86-4	TWA	3.5 mg/m <sup>3</sup>	GB EH40
		STEL	7 mg/m <sup>3</sup>	GB EH40

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End use	Exposure routes	Potential health effects	Value
Carbon black	Workers	Inhalation		2mg/m <sup>3</sup>
Remarks:	DNEL (long-term rep)			

**8.2 Exposure controls**

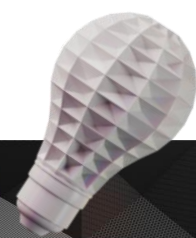
Engineering measures : Provide sufficient air exchange and/or exhaust in work rooms. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Apply measures to prevent dust explosions.

Personal protective equipment

- Eye protection : Safety glasses with side-shields.
- Hand protection : Protective gloves
- Skin and body protection : Safety shoes. Suitable protective clothing.
- Respiratory protection : Effective dust mask. In the case of vapor formation use a respirator with an approved filter.
- Protective measures : Follow the skin protection plan.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

- Appearance : Filament.
- Color : Black.
- Physical state : Solid state at room temperature.
- Odor : Characteristic.
- Melting point/range : 250 °C.
- Boiling point/range : Not determined.
- Flash point : Not determined.
- Flammability : No data available.
- Upper explosion limit : No data available.
- Lower explosion limit : The product is not explosive at itself, but it may form explosive dust.
- Vapor pressure : Not determined.



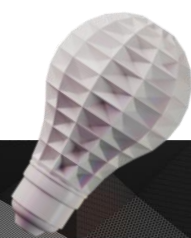
Density	:	Not determined.
pH	:	Not determined.
Water solubility	:	Insoluble.
Solubility in other solvents	:	Not determined.
Partition coefficient: n-octanol/water	:	No data available.
Ignition temperature	:	Not determined.
Decomposition temperature	:	No data available.

## 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	The product is chemically stable.
Hazardous reactions	:	Finely dispersed particles form explosive mixtures with air. Burning produces noxious and toxic fumes.
Conditions to avoid	:	Keep away from heat and sources of ignition. Avoid dust formation. Avoid moisture.
Materials to avoid	:	No data available.
Hazardous decomposition products	:	Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Sulphur compounds. Aldehydes. Organic acids.

## 11. TOXICOLOGICAL INFORMATION

Acute toxicity	:	No data available.
Skin corrosion/irritation	:	May cause skin irritation.
Respiratory tract irritation	:	May cause irritation of respiratory tract.
Serious eye damage/irritation	:	Dust contact with the eyes can lead to mechanical irritation.
Respiratory or skin sensitization	:	No known sensitizing effect.
Germ cell mutagenicity	:	No data available.
Carcinogenicity	:	This information is not available.
Reproductive toxicity	:	No data available.
Aspiration toxicity	:	No data available.



## 12. ECOLOGICAL INFORMATION

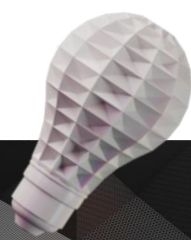
Toxicity	:	No data available.
Persistence and degradability	:	No data available.
Bioaccumulative potential	:	No data available.
Mobility in soil	:	No data available.
Results of PBT and vPvB assessment	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Additional ecological information	:	Should not be released into the environment.

## 13. DISPOSAL CONSIDERATIONS

Waste treatment methods	:	Dispose of in accordance with the European Directives on waste and hazardous waste. In accordance with local and national regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Contaminated packaging	:	Dispose of in accordance with local regulations. Dispose of as unused product.

## 14. TRANSPORT INFORMATION

UN number	:	Not regulated as a dangerous good.
UN proper shipping name	:	Not regulated as a dangerous good.
Transport hazard class(es)	:	Not regulated as a dangerous good.
Packing group	:	Not regulated as a dangerous good.
Environmental hazards	:	Not regulated as a dangerous good.
Special precautions for user	:	Not applicable.
Transport in bulk according to Annex II of Marpol and the IBC Code	:	Not applicable for product as supplied.



## 15. REGULATORY INFORMATION

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

Chemical safety assessment : A Chemical Safety Assessment is not required for this substance.

## 16. OTHER INFORMATION

- The information in this Material Safety Data Sheet (MSDS) is mainly based on information used from the supplier of the raw materials which are used for production of the filaments.
- The information in this Material Safety Data Sheet (MSDS) is based on current knowledge and experience. No liability can be assumed for the accuracy and completeness of this information.
- Users should consider this information only as additional to other data gathered. Independent determination of suitability and completeness of information from all available sources is essential to ensure proper and safe use and disposal of these materials.
- The information in this MSDS applies for this specific material only. It therefore does not apply for its usage in combination with other materials or ways of processing.