

MATERIAL SAFETY DATA SHEET

BioFil - PCL

Date of issue: 14-10-2024 / Date of update: 14-10-2024



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identification

Product name: BioFil - PCL

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

Identified uses: Filament for FDM 3D printing / pellets for FGF 3D printing.

1.3 Data on the supplier of the safety data sheet

Supplier: FormFutura BV
Address: Tarweg 3, 6534 AM, Nijmegen, the Netherlands
Phone: +31 (0)88 743 4000
Email: product.compliance@formfutura.com

1.4 Emergency telephone number

112

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

This substance is not classified as dangerous according to regulation (EC) 1272/2008 [CLP].

2.2 Label elements

- Hazard pictograms and signal words: None
- Names of substances mentioned on label: None
- Hazard statements: None
- Precautionary statements: None

Markings according to EC guidelines: According to the method of calculating the " General Classification Guideline for the Production of the EC " in the latest valid version, the product does not require labeling. The normal safety measures for handling chemicals should be observed.

2.3 Other hazards

This substance does not meet the criteria for classification as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name: 2-oxepanone, homopolymer
EC No: Not available
CAS No: 24980-41-4
REACH Registration Number: No data available
Weight-%: >97
Classification according to Regulation (EC) No. 1272/2008 [CLP]: Not classified

Additional information

The product is exempt from REACH registration (polymer).

SECTION 4: First aid measures

4.1. Description of first aid measures

The filament is not hazardous to human health. The information on first aid provided below relates to the situation when the exposure was caused by working with the hot product during printing.

Eye contact: During printing process: splashes of liquid filament may cause burns. Rinse thoroughly with plenty of water, also under the eyelids.



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- Skin contact:** During printing process: In contact with molten product immediately flush with cold water for at least 10 minutes. Do not pull solidified product off the skin. In case of burn injury immediately get medical attention.
- Inhalation:** During printing process: move to fresh air in case of accidental inhalation of vapours. If irritation persists get medical advice/attention.
- Ingestion:** exposure by this route does not typically occur. If a large quantity has been ingested or if you feel unwell, get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

- Skin contact: contact with the product at high temperature may cause severe burns.
- Eye contact: at high temperatures, the vapors generated during printing process may cause irritation.
- Inhalation: at high temperatures, the vapors generated during printing process may cause irritation of respiratory track.

4.3. Indication of any immediate medical attention and special treatment needed

Physician makes a decision regarding further medical treatment after thoroughly examination of the injured. Symptomatic treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing agents

Suitable extinguishing media:

Water spray (fog), Foam, Carbon dioxide (CO₂), Extinguishing powder.

Unsuitable extinguishing media:

Do not use a solid water stream as it may scatter and spread fire.

5.2. Specific hazards associated with a substance or mixture

Carbon monoxide (CO), and. Monomer (2-Oxepanone, Hexan-6-olide, CAS 502-44-3).

5.3. Information for the firefighters

In the event of fire, wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Avoid contact with eyes and skin. Remove all sources of ignition.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

6.3. Methods and materials preventing the spread of contamination and used for cleaning up

Methods for containment Prevent product from entering drains.

Methods for cleaning up Collect in closed and suitable containers for disposal.

6.4. Reference to other sections

Appropriate conduct with waste product – section 13. Personal protective equipment – see section 8.

SECTION 7: Handling and storage

7.1. Safe handling advice

Ensure adequate ventilation, especially in confined areas. Protect from direct sunlight. Keep away from heat. Use personal protective equipment as required.

General Hygiene Considerations



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Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Ensure good ventilation at the work station.

7.2. Storage

Keep tightly closed in a dry and cool place.

7.3. Specific end use(s)

This information is supplied in the present Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Keep personal exposure levels below Derived No Effect Level (DNEL) and national exposure limit values (if existing).

Derived No Effect Level (DNEL) - worker	Not determined
Derived No Effect Level (DNEL) - Consumer	Not determined
Predicted No Effect Concentration (PNEC)	Not determined

8.2. Exposure controls

Engineering measures:

Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment:

The necessity to use and selection of appropriate personal protective equipment should take into account the type of risk created by the product, conditions at the workplace and the manner of handling the product. The personal protective equipment used must meet the requirements of Regulation (EU) 2016/425 and the relevant standards.

General safety and hygiene:

Keep away from foodstuffs, beverages, and food.

Do not eat, drink, smoke.

Do not breathe dust / smoke.

Avoid contact with eyes and skin.

Wash hands before breaks and after work.

Breathing equipment:

Under normal conditions of use is not required. In emergency situation, when exposed to high concentrations of fumes evolved in printing process appropriate respiratory protective equipment should be worn.

Hand and body protection:

Use protective gloves and protective clothing if a risk assessment indicates this is necessary (EN 374).

Eye protection:

Use tightly fitting protective glasses if risk assessment indicates that it is necessary (EN 166).

Thermal hazards:

If contact with the hot product is expected, use heat-resistant gloves in accordance with EN 407 standard.

Environmental exposure controls:

Avoid release of large amounts of the product to groundwater, drainage system or soil.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties



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Physical state:	Solid
Appearance:	Wire, filament, or pellets.
Color:	White
Odor:	Weak
pH:	Not determined.
Vapor pressure:	Not determined.
Vapor density:	Not determined.
Evaporation rate:	Not determined.
Partition Coefficient (n-octanol/water):	Not determined.
Density:	1,1 g/cm ³ (@ 60 °C)
Decomposition temperature:	200 °C.
Boiling point / boiling range:	Not determined.
Melting point / melting range:	58 - 60 °C / 136 - 140 °F.
Autoignition temperature:	Not determined.
Freezing point:	Not determined.
Flash point:	275 °C / 527 °F.
Flammability:	Not determined.
Flammability Limits in Air:	No information available.
Water solubility:	Insoluble in water.
Solubility in other solvents:	None known.
Solubility:	No information available.
Other Standards:	None

9.2. Other standards

No additional test results.

SECTION 10: Stability and reactivity

10.1. Reactivity

There exists no specific test data for this product. For further information, see the subsequent subsections of this chapter

10.2. Chemical stability

The product is stable under normal conditions of handling and storage.

10.3. Conditions to avoid

To avoid thermal decomposition, do not overheat.

10.4. Materials to avoid

Avoid contact with acids. Avoid contact with bases.

10.5. Hazardous decomposition products

Possible decomposition and release of monomer at temperatures above 200°C.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Principle routes of exposure

Inhalation, Dermal.

Symptoms related to the physical, chemical and toxicological characteristics

None known.

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Numerical measures of toxicity

- **Acute toxicity:** The polymer is not bioavailable because of its molecular size.
- **Skin corrosion/irritation:** No information available.



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- **Serious eye damage/irritation:** No information available.
- **Respiratory or skin sensitization:** No sensitizing effects known..
- **Germ cell mutagenicity:** No information available.
- **Carcinogenicity:** No information available.
- **Reproductive toxicity:** No information available.
- **STOT-single exposure:** No information available.
- **STOT-repeated exposure:** No information available.
- **Aspiration hazard:** No hazard identified.

SECTION 12: Ecological information

12.1 Ecotoxicity effects

The polymer is not bioavailable because of its molecular size.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulation

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB

12.6 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products

The product is not classified as hazardous waste. Incinerate at a licensed installation.

Contaminated packaging

Thoroughly emptied and clean packaging may be recycled.

Waste codes / waste designations according to EWC / AVV

16 03 06.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

14.1 UN number or ID number

Not applicable. Product is not classified as dangerous during transportation.

14.2 UN proper shipping name

Not applicable.

14.3 Transport hazard class(es)

Not applicable.

14.4 Packing group



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Not applicable.

14.5 Environmental hazards

Not applicable.

14.6 Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

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

International Regulations

Not applicable.

European Union

Not applicable.

France

Occupational Illnesses (R-463-3, France)

Germany

Water hazard class (WGK)

15.2 Chemical safety assessment

Not applicable.

SECTION 16: Other information

Explanations of abbreviations:

- **CLP:** Regulation No. 1272/2008
- **IATA:** International Air Transport Association
- **IMDG:** International Maritime Dangerous Goods
- **IMO:** International Maritime Organisation
- **PBT:** Persistent, Bioaccumulative, Toxic
- **REACH:** Registration, Evaluation and Authorisation of Chemicals
- **vPvB:** very Persistent, very Bioaccumulative
- **STEL:** Short-Term Exposure Limit
- **LD50:** Lethal Dose
- **LC50:** Lethal Concentration
- **EC50:** Effective Concentration 50%
- **DNEL:** Derived No-Effect Level
- **PNEC:** Predicted No-Effect Concentration
- **OEL:** Occupational Exposure Limit
- **ADR:** Agreement concerning the International Carriage of Dangerous Goods by Road
- **AND:** European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- **RID:** regulations for international transport of dangerous goods by rail
- **MARPOL:** International Convention for the Prevention of Pollution from Ships

Trainings

Before commencing working with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo a proper workplace training.



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Key literature references and data sources

This sheet was prepared on the basis of on manufacturer's data, literature data, online databases, our knowledge and experience, taking into account the current legislation.

Procedures used to classify the mixture

Classification was based on data on hazardous substances calculation method under the guidance of Regulation 1272/2008/EC (CLP) as amended.

Disclaimer:

This safety data sheet (SDS) is issued based on the latest reference, data, etcetera currently available. The information in this SDS has been carefully assessed, but no guarantee is given for its accuracy. We cannot anticipate all conditions under which this product may be used. It is the user's responsibility to take appropriate safety measures for handling.

