PEI Filament Ultem 1010

1. Chemical product and copany information

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

2. Hazards indentification

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 ha-zard.

c Label elements

Labelling (REGULATION (EC) No 1272/2008)	Not a hazardous substance or mixture.

d Other hazards

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.

3. Composition/information on ingredients

a Mixtures

Hazardous components	No hazardous ingredients

Components which are considered potential hazards to health or the environment, if present above minimum concentrations, are listed above. Any concentration shown as a range is to protect confidentiality and/or is due to batch variation. Any non-hazardous components are being withheld as a trade secret. This product consists primarily of high molecular weight polymers which are not expected to be hazardous. Furthermore, any additives in this product are present within the polymer matrix and are not expected to be hazardous under recommended use conditions. Occupational exposure limits, if available, are listed in Section 8.

4. First aid measures

a Description of first aid measures

General advice	Thermal decomposition can lead to release of irritating gases and vapours. Move the victim to fresh air. Obtain medical attention.
If inhaled	Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion. If symptoms persist, call a physician.
In case of skin contact	After contact with skin, wash immediately with plenty of cold water. Wash off immediately with soap and plenty of water.
In case of eye contact	Immediately flush eye(s) with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, consult a specialist.
If swallowed	Negligible or unlikely exposure pathways If accidentally swallowed obtain immediate medical attention.

b Over-exposure signs/symptoms None known

c Indication of any immediate medical attention and special treatment needed

Notes to physician	No information available

5. Firefighting measures

a Extinguishing media

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.

b Special hazards arising from the substance or mixture

Specific hazards during firefighting	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. Material is not sensitive to mechanical impact.
Hazardous combustion products	Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbon fragments, hydrogen cyanide, nitrogen oxides. If present, certain hazardous additives can also liberate halogenated hydrocarbons.

c Advice for firefighters

Special protective equipment for firefighters	**Wear self-contained breathing apparatus for firefighting if necessary. Stay upwind/ keep distance from source.**
Further information	**Take precautionary measures against static discharges. During processing, dust may form explosive mixture in air. Thermal decomposition can lead to release of irritating gases and vapours.**

6. Accidental release measures

a Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	**Take precautionary measures against static discharges.**

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. Do not create a powder cloud by using a brush or compressed air.**

d	**Reference to other sections**	**For disposal considerations see section 13.**

7. Handling and storage

a Precautions for safe handling

Advice on safe handling	**Handle in accordance with good industrial hygiene and safety practice.Provide for appropriate exhaust ventilation and dust collection at machinery.Avoid dust formation.All metal parts of the mixing and processing equipment must be earthed.Open containers only in well-ventilated area.**
Hygiene measures	**Do not eat, drink or smole when using this product**

b Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	**Keep tightly closed in a dry and cool place. Keep away from heat and sources of ignition. Residual monomer vapors can accumulate in the headspace of closed containers.**

8. Exposure controls/personal protection

a	**Control parameters**	**Contains no substances with occupational exposure limit values.**

b Engineering controls

Engineering measures	**Handle in accordance with good industrial hygiene and safety practice. Provide appropriate exhaust ventilation at machinery. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.**
Personal protective equipment	
Eye protection	**Safety glasses with side-shields Chemical resistant goggles must be worn.**
Hand protection	**Wear protective gloves.**
Skin and body protection	**Long sleeved clothing**
Respiratory protection	**Use adequate ventilation and/or engineering controls in high temperature processing to prevent exposure to vapours. If dust or powder are produced from secondary operations such as sawing or grinding, use a respirator approved for protection from dust.**
Protective measures	**Wear suitable protective equipment.**

9. Physical and chemical properties

Appearance	**Filament**
Physical state	**Solid**
Colour	**Natural**
Odour	**None or slight**
Odour Threshold	**No information available**
Melting point/range	**This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.**
Boiling point/boiling range	**Not determined**
Upper explosion limit	**Not determined**
Lower explosion limit	**Not determined**
Vapour pressure	**Negligible**
Relative vapour density	**Not determined**
Relative density	**>1**
Density	**Not determined**
Bulk Density	**500 kg/m³**
Water solubility	**Insoluble**
Solubility in other solvents	**Not determined**
Partition coefficient: n-octanol/water	**No information available**
Auto-ignition temperature	**Not determined**

Decomposition temperature	Not determined
Viscosity, dynamic	Not applicable
Viscosity, kinematic	Not applicable

10. Stability and reactivity

a	Reactivity	Stable under recommended storage conditions.
b	Chemical stability	Stable at normal ambient temperature and pressure. Hazardous polymerisation does not occur.
c	Possibility of hazardous reactions	
	Hazardous reactions	No dangerous reaction known under conditions of normal use.
d	Conditions to avoid	To avoid thermal decomposition, do not overheat. Heating can release hazardous gases. Do not exceed melt temperature recommendations in product literature. Purgings of hot material should be collected in small, flat, thin shapes and quenched with water to allow for rapid cooling. Do not allow product to remain in barrel at elevated temperatures for extended periods of time.
e	Incompatible materials	
	Materials to avoid	No special restrictions on storage with other products.
f	Hazardous decomposition products	Process vapors under recommended processing conditions may include trace levels of ,hydrocarbons, phenols, alkylphenols, diarylcarbonates

11. Toxicological information

a	Acute toxicity	
	Acute oral toxicity	Remarks: >5000 mg/kg (estimated)
	Acute dermal toxicity	Remarks: >2000 mg/kg (estimated)
b	Experience with human exposure	
	Inhalation	Remarks: Inhalation unlikely due to physical form. Processing fumes evolved at recommended conditions may contain trace amounts of hazardous chemicals. Extreme processing conditions or temperatures may result in higher levels. Processing vapors may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing vapor condensates on ventilation duct work, molds, and other surfaces can cause irritation and injury to skin.
	Skin contact	Remarks: Not a hazard during normal industrial use. If present, some additives (like glass fiber or flame retardants) may cause skin irritation in susceptible persons.
	Eye contact	Remarks: Resin particles, like other inert materials, are mechanically irritating to eyes.

	Ingestion	Remarks: Ingestion unlikely due to physical form.
c	Further information	
	Special studies	The toxicological data has been taken from products of similar composition.

12. Ecological information

a	Ecotoxicity	No data available
b	Persistence and degradability	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	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.
f	Additional ecological information	Do not flush into surface water or sanitary sewer system. Based on the ecotoxicology studies conducted on fine particles/fibers in the sub-micron range, this material is not expected to be environmentally hazardous under normal use.

13. Disposal considerations

a	Waste treatment methods	
	Product	Where possible recycling is preferred to disposal or incineration.
	Contaminated packaging	Where possible recycling is preferred to disposal or incineration. Can be landfilled or incinerated, when in compliance with local regulations.

14. Transport information

a	UN-number	Not regulated as a dangerous good
b	UN proper shipping name	Not regulated as a dangerous good
c	Transport hazard class(es)	Not regulated as a dangerous good
d	Packing group	Not regulated as a dangerous good
e	Environmental hazards	Not regulated as a dangerous good
f	Special precautions for user	Not classified as dangerous in the meaning of transport regulations.
g	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable for product as supplied

15. Regulatory information

a The components of this product are reported in the following inventories:

REACH (European Union)	**For further information, please contact: Manufacturer, importer, supplier**
CH INV (Switzerland)	**The formulation contains substances listed on the Swiss Inventory Not in compliance with the inventory**
TSCA (USA)	**On TSCA Inventory**
DSL (Canada)	**This product contains the following components that are not on the Canadian DSL nor NDSL.**
AICS (Australia)	**On the inventory, or in compliance with the inventory**
NZIoC (New Zealand)	**On the inventory, or in compliance with the inventory**
ENCS (Japan)	**On the inventory, or in compliance with the inventory**
ISHL (Japan)	**For further information, please contact: Manufacturer, importer, supplier**
KECI (Korea)	**On the inventory, or in compliance with the inventory**
PICCS (Philippines)	**Polymer exemption Not in compliance with the inventory**
IECSC (China)	**Not in compliance with the inventory**
TCSI (Taiwan)	**For further information, please contact: Manufacturer, importer, supplier**
EHSNR (Malaysia)	**For further information, please contact: Manufacturer, importer, supplier**
CICR (Turkey)	**For further information, please contact: Manufacturer, importer, supplier**

b Other applicable national regulatory information

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	**Not applicable**
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	**Not applicable**
REACH - List of substances subject to authorisation (Annex XIV)	**Not applicable**

	Seveso II - Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances	**Not applicable**
	Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	**Not applicable**
c	**Chemical Safety Assessment**	**A Chemical Safety Assessment is not required for this substance.**

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.