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MATERIAL SAFETY DATA SHEET

according to Regulation (EU) No. 1907/2006

InnoFlex 45 by Innofil3D BV

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Trade name	:	InnoFlex 45
Chemical name	:	Thermoplastic Copolyester Elastomer
Chemical family	:	Biobased Thermoplastic Copolyester TPC
Use	:	Monofilament for 3D-printing
Company	:	Innofil3D BV
Street address	:	Eerste Bokslootweg 17
Postal code and city	:	7821 AT Emmen
Country	:	The Netherlands
Telephone number	:	+31 (0) 591 820 389

2. HAZARDS IDENTIFICATION

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification	:	Not classified.
Human health hazards	:	Dust may cause mechanical irritation. Heated material can cause thermal burns.
Environmental hazards	:	Based on the available data of this product no hazardous properties are known.
Physical/chemical hazards	:	Combustible.
Remarks	:	Hazard of slipping on spilt product. Heated material can cause thermal burns. Electrostatic charging can occur during unloading or processing of this material. If necessary take precautionary measures against static discharges. The likelihood of adverse health effects arising from normal use of the product are considered very low. Appropriate precautions should be taken if the product is subjected to secondary processing. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Dust may cause mechanical irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	:	Thermoplastic Copolyester Elastomer

Within the present knowledge of the supplier, this product does not contain any hazardous ingredients in quantities requiring reporting in this section, in accordance with EU or national regulations.

Remarks	:	The components of this product are embedded in an impervious polymer matrix and are therefore not biologically available. Any hazardous constituents are fixed in the polymer matrix and therefore present a negligible exposure risk under normal conditions of processing and handling. Additives contained in this product do not pose a risk to health unless they are liberated during processing (fumes from melting, dusts). Suitable Industrial Hygiene precautions should be implemented to prevent (respirable) dust and fume exposures. Exposure to (melting) fumes should be kept as low as possible, using suitable ventilation equipment. Dusts and fumes created from secondary processing may be irritating to respiratory tract and skin and should be considered as potentially hazardous. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

4. FIRST-AID MEASURES

Effects and symptoms

Eye contact	:	May cause eye irritation (redness).
Skin contact	:	Heated material can cause thermal burns resulting in pain, redness, blistering.
Inhalation	:	Over-exposure by inhalation may cause respiratory irritation (coughing).
Ingestion	:	There is no known acute effect after over-exposure to this product.

First aid measures

Eye contact	:	Rinse with plenty of running water. Get medical attention if symptoms occur.
Skin contact	:	Rinse with plenty of running water. Do not pull coagulated product loose. Get medical attention.
Inhalation	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	:	If swallowed, rinse mouth with water (only if the person is conscious). Get medical attention if symptoms occur.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use dry chemical or CO2 for small fire. Use dry chemical powder, alcohol-resistant foam for large fire.
Hazardous decomposition products	:	In case of fire, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, (dense) black smoke, aldehydes, and organic acids.
Special protective equipment for firefighters	:	Wear suitable protective clothing. Self-contained breathing apparatus.
Under fire conditions	:	Fight fire from protected location or maximum possible distance. Keep the area surrounding the fire cool. Avoid contact with heated material.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Avoid creating dusty conditions and prevent wind dispersal. Use suitable protective equipment (section 8). Keep away from sources of ignition. Take precautionary measures against static discharges.
Environmental precautions	:	No special measures required.
Methods for cleaning up	:	Vacuum or sweep up material and place in a designated, labelled waste container. Clean up affected area with a large amount of water.

7. HANDLING AND STORAGE

Safe handling advice	:	Use with adequate ventilation. Local exhaust ventilation should be provided. Avoid creating dusty conditions and prevent wind dispersal. Take measures against static discharge. Keep away from sources of ignition.
Storage conditions	:	Store in a fireproof location. Keep away from incompatible materials and avoid specific conditions (see Section 10).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures	:	Use only with adequate ventilation. Local exhaust ventilation should be provided.

<u>Personal protective equipment</u>

Eye protection	:	Wear protective goggles.
Skin and body protection	:	Working clothes.
Respiratory protection	:	Wear dust protection mast P2.
Hand protection	:	When handling hot material, wear heat-resistant protective gloves that are able to withstand the temperature of molten product.

Hygiene measures	:	When using do not eat, drink or smoke. Wash hands after handling compounds and before eating, smoking and using the lavatory and at the end of the day.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Filament.
Color	:	Natural White and 8 colors.
Physical state	:	Solid at room temperature.
Odor	:	Not available.
Melting point/range	:	155 to 225 °C
Density	:	>1 g/cm^3
Water solubility	:	Insoluble.

10. STABILITY AND REACTIVITY

Stability	:	Stable under recommended storage and handling conditions.
Conditions to avoid	:	No special recommendations.
Materials to avoid	:	No special recommendations.

11. TOXICOLOGICAL INFORMATION

Principle routes of exposure	:	No known significant effects or critical hazards.
Acute toxicity	:	No specific data.
Local effects	:	No known significant effects or critical hazards.
Long term toxicity	:	No known significant effects or critical hazards.
Mutagenic effects	:	No known significant effects or critical hazards.
Carcinogenic effects	:	No known significant effects or critical hazards.
Target organ effects	:	No known significant effects or critical hazards.

12. ECOLOGICAL INFORMATION

Mobility	:	For data on physical state and solubility see section 9.
Environmental effects	:	No known significant effects or critical hazards.
Aquatic ecotoxicity	:	No specific data.
Persistence and degradability	:	No specific data.
Remarks	:	This product is not biodegradable and not toxic to aquatic organisms. The components of this product are embedded in an impervious polymer matrix and are therefore not biologically available.

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13. DISPOSAL CONSIDERATIONS

Methods of disposal	:	Waste must be disposed of in accordance with national and local environmental regulations.
Hazardous waste	:	Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

14. TRANSPORT INFORMATION

ADR / RID	:	Not regulated.
ADN / ADNR	:	Not regulated.
IMDG	:	Not regulated.
IATA-DGR	:	Not regulated.

15. REGULATORY INFORMATION

Risk phrases	:	According to EU Directives 67/548/EEC and 1999/45/EC this product does not require labelling with symbols and/or R-phrases.
Europe inventory	:	At least one component is not listed.

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 therefor does not apply for its usage in combination with other materials or ways of processing.

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