

## **Material Safety Data Sheet**

*According to EU Regulation No. 1907/2006*

### **Product: PLA+Agrowaste for 3d-printing**

#### **1. Identification of the substance/preparation and of the company**

- 1.1 Trade Name: Kanèsis
- 1.2 Chemical Name: PolyLactic Acid (PLA) based polymer blend
- 1.3 Typical use of the material: Monofilament for FFF technology based 3D printing
- 1.4 Identification of the company: Kanèsis

#### **2. Identification of the substance/preparation and of the company**

- 2.1 Risk advise to man and the environment: No risk exists to the health of users id the product is handled and processed properly.
- 2.2 Classification of the substance or misxture: Not classified as dangerous according to Directive 67/548/EEC.
- 2.3 Special Advise on Hazards: Danger of burns while handling the molten material.

#### **3. Composition**

- 3.1 Chemical Nature: Blend of PLA based polymers filled with 10% to 40% agricultural wastes
- 3.2 CAS Number: 9051-89-2
- 3.3 Additional Information: No harmful substances used

#### **4. First-aid measures**

- 4.1 If inhaled: After inhalation of decomposition products, gases or dust, bring the affected person to a source of fresh air and keep calm. Contact a physician in case of discomfort.
- 4.2 On skin contact: In case of contact with melted material, immediately cool the skin with plenty of cold running water. Removal of adhering to skin polymer, or burns caused by molten material require hospital treatment.
- 4.3 On contact with eyes: In case of contact with eyes, rinse open eyes thoroughly with water. If irritation develops, seek immediate medical attention.
- 4.4 On ingestion: No effects known. Rinse mouth with water and then drink plenty of water. Seek medical attention if difficulties or discomfort occur.
- 4.5 Note to the physician: Treat symptomatically.

## 5. Firefighting Measures

5.1 Suitable extinguishing media: Dry extinguishing media, water or CO<sub>2</sub>.

5.2 Specific hazards: Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), and hydrocarbons during incomplete combustion. The substances mentioned can be released at highly elevated temperatures and in case of fire.

5.3 Special protective equipment: Full protective clothing and self-contained breathing apparatus.

5.4 Further information: Fine dust dispersed in air may ignite. Risk of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

## 6. Accidental Release Measures

6.1 Personal precautions: Use personal protective equipment/clothing. Avoid eye contact and dust formation and remove all sources of ignition. Sweep up to prevent slipping hazard.

6.2 Environmental precautions: Prevent entry into drainage systems, or surface water.

6.3 Methods of cleaning up: Sweep/shovel into suitable container for disposal. Avoid raising dust and ensure adequate ventilation.

## 7. Handling and storage

7.1 Handling: Handle in a well ventilated area. Install local exhaust at 3D printers area is recommended when many printers are operated at once. Avoid contact with heated or molten product. Use personal protective equipment (see Section 8). Avoid dust formation and electrostatic charge. Keep away from fire ignition sources.

7.2 Storage: Protect from water, moisture and direct sunlight. Store material in dry rooms and keep material in closed packaging/container with desiccant when not in use. Store at ambient temperatures. Avoid all sources of ignition.

7.3 Precautions: No special precautions required.

7.4 Specific end use: Primarily for 3d printing.

## 8. Exposure control and personal protection.

8.1 Occupational exposure limits: Given suitable ventilation it can be that the threshold limits will not be reached.

8.2 Exposure controls: Provide appropriate exhaust ventilation at places where dust is formed. Avoid electrostatic charge by use of grounding cables.

8.3 Personal Protective Equipment: For hand protection, wear heat protection gloves when handling hot molten product; for eye protection, wear protective glasses; for skin and body protection, wear protective clothing to avoid direct exposure of skin to hot molten product when handling.

8.4 Safety and hygiene measures: Avoid contact of hot molten material to skin. Avoid inhalation of dust, mists and vapours. Eye wash fountains and safety showers must be easily accessible. Handle in accordance with good industrial hygiene and safety practice. No eating or drinking during working.

8.5 Environmental exposure controls: Prevent entry into drainage systems, or surface water.

## 9. Physical and chemical properties

Form: Granules and Filaments

Colour: Natural (light to dark brown)

Odour: Almost odourless

Melting point range: 140-180 (Celsius degrees)

Auto-ignition temperature: Not self-igniting and not highly flammable

Solubility in water: insoluble

## 10. Stability and reactivity

10.1 Stability: Product is stable at recommended storage conditions.

10.2 Conditions to avoid: Avoid extreme heat and all sources of ignition. Thermal decomposition > 210°C.

10.3 Substances to avoid: strong oxidizing agents.

10.4 Hazardous reactions: the product is chemically stable.

## 11. Toxicological information

Information on toxicological effects: Toxicological data has not been determined for this product. Information is based on similar products.

Acute toxicity: For inhalation, no data available but not expected; for ingestion, pain or nausea are possible; for skin contact, no data available but not expected; for eye contact, no data available but no expected.

Irritation: for skin and eyes, the dust can cause irritation.

Sensitization: not expected.

Repeated dose toxicity: not expected.

Carcinogenicity: no data available, but not expected.

Mutagenicity: no data available, but no expected.

Toxicity for reproduction: no data available, but no expected.

Generally, based on our state of knowledge and experience no injurious health effects are expected if product is properly handled for the designated use.

## 12. Ecological Information

No negative ecological effects are known at the present state of knowledge. The product is essentially insoluble in water and has low mobility in soil. The product is biodegradable.

## 13. Disposal considerations

Generation of waste should be minimized, check possibility for recycling. Waste product can be incinerated or dumped together with domestic waste in compliance with local authority requirements.

Packaging material has to be emptied completely and disposed in accordance with the regulations.

Packaging can be recycled if not contaminated.

## 14. Transport Information

- International Air Transportation Association Classification (IATA): not classified as hazardous.

- International Maritime Organization (IMDG): not classified as hazardous.

- UN, IMO, ADR/RID, ICAO Code: not classified as hazardous.

## 15. Regulatory information

According to EU regulations, this product does not require an hazard warning label.