

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

PRO1 by Innofil3D BV

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Trade name	: PRO1
Chemical name	: Polylactic Acid compound
Chemical family	: Thermoplastic Polylactic acid compound
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

CAUTION: May cause eye-skin irritation. Burning produces obnoxious and toxic fumes. Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Potential health effects

Eye contact	: Contact with eyes may cause irritation.
Skin contact	: Substance may cause slight skin irritation.
Ingestion	: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Inhalation	: Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Low hazard for usual industrial or commercial handling.
Target organ effects	: There were no target organ effects noted following ingestion or dermal exposure in animal studies.
Sensitization	: Did not cause sensitization on laboratory animals.
Specific hazards	: Non known.
Flammability	: Fine dust dispersed in air may ignite.



3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances/mixtures	: Mixture
Chemical name	: Polylactic acid
CAS Number	: 9051-89-2

Classification according to Regulation (EG) No. 1272/2008 [CLP/GHS]:

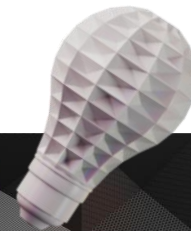
This product is not classified as hazardous according to Regulation (EG) 1272/2008 as amended.

4. FIRST-AID MEASURES

Hazards	: When used correctly, no special hazards are to be expected.
Eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	: Rinse immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. Cool skin rapidly with cold water after contact with hot polymer. Do not peel polymer or adhering clothing of the skin. Consult a physician.
Inhalation	: Move to fresh air when dust was inhaled. Get medical attention if symptoms occur.
Ingestion	: Drink plenty of water as a precaution. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Get medical attention if symptoms occur.
Note to physician	: Treat symptomatically. No action shall be taken involving any personal risk or without suitable training.
Acute toxicity	: There were no target organ effects noted following ingestion or dermal exposure in animal studies.

5. FIRE-FIGHTING MEASURES

Flammable properties	: Auto ignition temperature 388 °C
Suitable extinguishing media	: Foam, water, Carbon Dioxide (CO ₂), dry chemical. Alcohol resistant foams are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively.
Unsuitable media	: Not applicable.
Hazardous decomposition products	: Burning produces obnoxious and toxic fumes, Aldehydes, Carbon Monoxide (CO), Carbon Dioxide (CO ₂), smoke. The emergence of decomposition and oxidation products depends upon the fire conditions.
Special protective equipment for firefighters	: As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.



Under fire conditions	:	Cool containers/tanks with spray water. Water mist may be used to cool closed containers.
Other information	:	Fine dust dispersed in air may ignite. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.

6. ACCIDENTAL RELEASE MEASURES

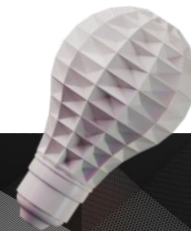
Personal precautions	:	Use personal protective equipment when needed. Remove all sources of ignition. Avoid inhalation of dust. Sweep up to prevent slipping hazard. Make sure there is proper ventilation.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.
Methods for cleaning up	:	Shovel into suitable container for disposal.

7. HANDLING AND STORAGE

Safe handling advice	:	Use with adequate ventilation. Avoid contact with eyes. Avoid dust formation. Users should be protected from the possibility of contact with hot/molten material during handling. Low hazard for usual commercial handling.
Storage conditions	:	Store at temperatures not exceeding 50 °C/122 °F. Keep cool. No special restrictions on storage with other products.
Precautions	:	No special precautions required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures	:	Where reasonably practicable this should be achieved by using the material in good ventilated areas.
Control parameters	:	None.
<u>Personal protective equipment</u>		
Personal protection must be chosen depending on activity and possible exposure.		
Eye protection	:	Safety glasses with side-shields. Goggles.
Skin and body protection	:	Impervious clothing.
Respiratory protection	:	Respirator must be worn if exposed to dust. Wear respirator with dust filter. Respiratory protection is needed if any of the exposure limits in Section 2 are exceeded.
Hand protection	:	Preventive skin protection. Gloves
Hygiene measures	:	None.



9. PHYSICAL AND CHEMICAL PROPERTIES

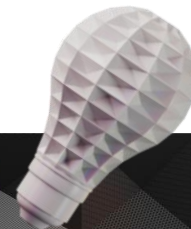
Appearance	: Filament in diameter 1.75 or 2.85 mm.
Color	: Natural White, Black or Silver.
Physical state	: Solid.
Odor	: Sweet.
Melting point/range	: 170 – 180 °C.
Boiling point/range	: Not applicable.
Decomposition temperature	: 250 °C (482 °F).
Density	: 1.25 g/cm ³ .
pH	: Not applicable.
Vapor pressure	: Not determined.
Vapor density	: Not determined.
Evaporation rate	: Not determined.
Water solubility	: Insoluble.
Solubility in other solvents	: None known.

10. STABILITY AND REACTIVITY

Stability	: Stable under recommended storage conditions.
Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Conditions to avoid	: Temperatures above 250 °C (482 °F). Ignition sources.
Materials to avoid	: Oxidizing agents. Strong bases.
Decomposition	: Burning produces obnoxious and toxic fumes, Aldehydes, Carbon monoxide (CO), Carbon Dioxide (CO ₂).
Polymerization	: Not applicable.

11. TOXICOLOGICAL INFORMATION

Principle routes of exposure	: Eye contact, skin contact, inhalation, ingestion.
Acute toxicity	: After a single ingestion, the material is practically nontoxic. The product itself has not been tested.
Local effects	: May cause skin/eye irritation. Product dust may be irritating to eyes, skin and respiratory system. Caused mild to moderate conjunctival irritation in eye irritation studies using rabbits (slightly irritating). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. When used in a proper way, no irritation is expected.
Long term toxicity	: Did not cause skin allergic reactions in skin sensitization studies using guinea pigs.
Specific effects	: May cause skin irritation and/or dermatitis. Ingestion may cause



	gastrointestinal irritation, nausea, vomiting and diarrhea. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Burning produces irritant fumes.
Mutagenic effects	: Not mutagenic in AMES test.
Reproductive toxicity	: No data is available on the product itself.
Carcinogenic effects	: No data is available on the product itself.
Target organ effects	: There were no target organ effects noted following ingestion or dermal exposure in animal studies.

12. ECOLOGICAL INFORMATION

Mobility	: No data available.
Bioaccumulation	: Not likely to bioaccumulate. Inherently biodegradable.
Eco toxicity effects	: EC50/72h/algae > 1100 mg/L
Persistence and degradability	: Inherently biodegradable under industrial composting conditions.

13. DISPOSAL CONSIDERATIONS

Waste from residues/unused products
 In accordance with local and national regulations. Do not contaminate ponds, waterways or ditches with chemical or used containers.

14. TRANSPORT INFORMATION

ADR/RID	: Not classified.
AND/ADNR	: Not classified.
IMDG	: Not classified.
ICAO/IATA-DGR	: Not classified.

15. REGULATORY INFORMATION

NOTICE: The information herein is presented in good faith and believed to be accurate as of the print date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. See other sections for health and safety information.

EU regulation 10/2011	: Listed.
1895/2005/EC	: Compliant.
Regulation (EC) No. 1935/2004	: Compliant.



2023/2006/EC GMP	:	Compliant.
Directive 94/62/EC	:	Compliant.
RoHS Directive	:	Certified.
EN 71-3; Toy safety	:	Certified.
REACH; 1907/2006/EC	:	Listed.
FDA	:	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 therefore does not apply for its usage in combination with other materials or ways of processing.