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PRUSA POLYMERS by JOSEF PRUSA

MATERIAL SAFETY DATA SHEET

Prusament PLA by Prusa Polymers

conforms to Regulation EC No. 1907/2006 (REACH)

1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

Product name: **Prusament PLA, all colours**
Chemical name: **Polylactid Acid**
Chemical family: **Thermoplastic**
Application: **filaments for 3D printing**

Manufacturer/Supplier:
Prusa Research s.r.o.
Partyzánská 188/7a
17000 Praha 7
Czech Republic
IČ: 24213705
+420 222 263 718
info@prusa3d.cz

Emergency contacts:
Toxicology Information Centre address: Na Bojišti 1, Praha 2
phone number: **+420 224 919 293**
phone number: **+420 224 915 402**

2. HAZARD IDENTIFICATION

2.1 CLASSIFICATION OF SUBSTANCE OR MIXTURE

Classification: **Not classified as hazardous in compliance with Regulation (EC) 1272/2008.**

2.2 LABEL ELEMENTS

Symbols/Pictograms: **None**
Signal Words: **None**
Hazard statement: **None**
Precautionary statement: **None**
PBT and vPvB substances: **Material does not contain PBT and vPvB substances**

2.3 OTHER HAZARDS

Not specified.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical name: **Polylactic Acid**
CAS number: **9051-89-2**
Product based on polylactic acid (PLA) with additives.
Substances presenting a health or environmental hazard within the meaning of Regulation (EC) No. 1272/2008, assigned a Community workplace exposure limit, classified as PBT/vPvB or included in the Candidate List: not included

Other standards: This material can generate Particulates Not Otherwise Classifiable (PNOC). The Occupational Safety and Health Administration (OSHA) PEL/TWA for PNOC is 15 mg/m3 for total dust and 5 mg/m3 for the respirable fraction. The American Conference of Governmental Industrial Hygienists (ACGIH) TLV/TWA for PNOC is 10 mg/m3 for inhalable particulates and 3 mg/m3 for respirable particulates.

4. FIRST AID MEASURES

We are not expected hazards under normal conditions and correct usage.
Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a doctor if necessary.
Skin contact: After contact with hot polymer cool skin rapidly with cold water. Call a doctor if necessary.
Inhalation: After inhalation of decomposition products of polymer, take affected persons to fresh air. Call a doctor if necessary.
Ingestion: Call doctor or consider to induce vomiting. Rinse mouth with water. Call a doctor if necessary.

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5. FIREFIGHTING MEASURES

Flammability: **Autoignition temperature: 388°C**

5.1 EXTINGUISHING MEDIA

Suitable extinguishing media: Foam, Water, Carbon dioxide (CO2), 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 extinguishing media - High pressure water jet can spread the fire

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Burning produces obnoxious and toxic fumes aldehydes, carbon monoxide, carbon dioxide

5.3 ADVICE FOR FIREFIGHTERS

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with self-contained breathing apparatus.
Under fire conditions: Cool containers / tanks with water spray Water mist may be used to cool closed containers 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

6.1 PERSONAL PRECAUTIONS

Use personal protective equipment as required
Avoid contact with skin and eyes
Remove all sources of ignition
Sweep up to prevent slipping hazard
Use with recommended personal protective equipment (see Section 8).

6.2 ENVIRONMENTAL PRECAUTIONS

Do not allow material to contaminate groundwater system
Do not flush into surface water or sanitary sewer system
Should not be released into environment

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Avoid dust formation. Sweep up into suitable container for disposal.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Avoid contact with skin and eyes
Low hazard for usual industrial or commercial handling
Users should be protected from the possibility of contact with molten material
Recommended for sufficient ventilation at the workplace.
Flammable product

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in original container protected from excessive heat, direct sunlight, dust and condensed water.
Protect from moisture, product can be hygroscopic, Store in a cool dry place 5-30 °C.
If you do not need filament for longer period of time, insert it back into container with attached silica gel.
Use within 1 year from manufacture.
Avoid contact with food.
Remove all possible sources of ignition.

7.3 SPECIFIC END USES

material for 3D-printing

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 APPROPRIATE ENGINEERING CONTROLS:

Avoid contact with skin, eyes and mucous membranes. Avoid prolonged or repeated contact with skin. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

8.2 PERSONAL PROTECTION

Eye protection: not required for 3D printing
Skin protection: not required for 3D printing
Respiratory protection: not required for 3D printing
Hand protection: Avoid contact with molten material
Environmental exposure controls: Do not allow product to enter water sources or soil.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid
Appearance: Colored plastic wire
Odor: Specific
pH: Not applicable
Vapor pressure: Not determined
Vapor density: Not determined
Evaporation rate: Not determined
Density (solid): 1.24 g/cm3
Decomposition temperature: 250°C (482F)
Boiling point / boiling range: Not applicable
Melting point/melting range: 150-180°C(302- 356F)
Tg(Glass Transition Temperature): 55-60°C (131-140F)
Autoignition temperature: 388°C
Flammability: Fine dust dispersed in air may ignite
Flammability Limits in Air: No information available
Water solubility: Insoluble
Solubility in other solvents: Not determined

10. STABILITY AND REACTIVITY

Reactivity: None expected under conditions of normal use.
Chemical stability: Stable under recommended storage conditions.
Possibility of hazardous reactions: None expected under conditions of normal use.
Conditions to avoid: overheating above temperatures 446F (230 °C).
Avoid keeping resin molten for excessive periods of time at elevated temperatures. Prolonged exposure will cause polymer degradation.
Hazardous decomposition products:
Burning produces obnoxious and toxic fumes Aldehydes, Carbon monoxide (CO), carbon dioxide (CO2).

11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECT

No adverse effects for human health are expected under normal conditions of usage.
Acute toxicity: (not to be expected)
Irritation: Not tested (not to be expected)
Sensitization: Not tested (not to be expected)
Repeated dose toxicity: Based on available data, the classification criteria are not met.
Carcinogenic effect: This product does not contain any carcinogens or potential carcinogens as listed by OSHA or IARC
Mutagenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.

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12. ECOLOGICAL INFORMATION

Bioaccumulative potential: Not expected

Persistence and degradability: Biodegradable under industrial composting conditions.

Toxicity: EC50/72h/algae > 1100 mg/L

Mobility in soil: not available

Results of PBT and vPvB assessment: Data are not available

13. DISPOSAL CONSIDERATIONS

Waste treatment: Dispose of in accordance with local regulations. Should not be released into the environment Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose as a common household waste. Sort out as plastic waste.

Packaging: Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

The substance is not classified as dangerous for transport according to ADR/RID/IMDG/ICAO/IATA.

15. REGULATORY INFORMATION

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

Regulation of the European Parliament and Council Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Regulation of the European Parliament and Council Regulation (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures (CLP)

RoHS – Directive 2011/65/EU

Prusa Research doesn't have any information about content of hazardous substances in Prusament PLA, these substances aren't used during production of filament. No measurements and analyses have been done, but based on information given by material suppliers, it is not expected any amount of hazardous substances in levels exceeding concentration described in Directive 2011/65/EU.

16. OTHER INFORMATION

The information presented in this Material Safety Data Sheet (MSDS) is based on our best knowledge in combination with original MSDS provided by manufacturer. MSDS contains information on safety use, storage and disposal.

Abbreviations:

REACH	Registration, Evaluation, Authorisation and restriction of chemical substances
EC	European Community
PBT	Persistent, Bioaccumulating, Toxic
vPvB	very Persistent, very Bioaccumulating
PNOC	Particulates Not Otherwise Classifiable Occupational Safety and Health Administration (OSHA)
PEL	permissible exposure limit
TWA	time-weighted average
AFFF	Aqueous film forming foam self-contained breathing apparatus (SCBA)
IARC	International Agency for Research on Cancer
EC50	Half maximal effective concentration
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	International Rule for Transport of Dangerous Substances by Railway
IMDG	International Maritime Dangerous Goods Code
ICAO	International Civil Aviation Organization
IATA	International Air Transport Association

DISCLAIMER:
The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. User should consider this information only as additional. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned. No liability can be assumed for accuracy and completeness. It is the responsibility of the user to adapt the warnings to local laws and regulations. Safety information describes the product in terms of safety and can not be considered as technical information about the product.