

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND COMPANY/UNDERTAKING
1.1 Product Identifier

Product name: ePLA 3D Printer Filament (PLA based)

1.2 Recommended use of the chemical and restrictions on use

Recommended Use : For use in FFF/FDM 3D printing machines

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier: 3Dink Inc.

Supplier Address: 349-20 Hwahap-ro 1080beon-gil Yangju-si Gyeonggi-do Republic of Korea

Telephone number: +82-10-9002-9700 / +82-10-6671-0010

Email: plasilkorea@gmail.com

1.4 Emergency Telephone Number

Emergency Telephone: +82-10-9002-9700 / +82-10-6671-0010 (Korean only)

Opening hours: 10:00~18:00 (UTC+09)

SECTION 2 HAZARDS IDENTIFICATION

2.1 Appearance & Physical state : Opaque, Filament, Solid (Mild Odor)

2.2 Eye contact : Contact with eyes may cause irritation.

2.3 Skin contact : Substance may cause slight skin irritation.

2.4 Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

2.5 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.

2.6 Target organ effects : There were no target organ effects noted following ingestion or dermal exposure in animal studies.

2.7 Sensitization : Did not cause sensitization on laboratory animals

2.8 Specific hazards : No information available Flammability: Fine dust dispersed in air may ignite.

2.9 Environmental precautions : Not determined See Section 12 for more information.

2.10 Personal Protective Equipment : Not determined

2.11 NFPA & HMIS classification :

Classification	Health	Flamm	Reactivity
NFPA rating	1	1	0
HMIS classification	1	1	0

***Emergency Overview :**

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

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Mixtures

Substance Name	Usual Name	CAS No	Weight(%)
Poly lactide resin	PLA	178275-24-6	90

OSHA Exposure Limits: None

ACGIH Exposure Limits: None

All ingredients in quantities > 1.0% (0.1% for carcinogens) that are potentially hazardous per OSHA definitions.

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 3mg/m³ for respirable particulates.

SECTION 4 FIRST-AID MEASURES

4.1 Description of first aid measures

Eye 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.

Skin contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

4.2 Indication of immediate medical attention and special treatment needed

Treat symptomatically

SECTION 5 FIRE-FIGHTING MEASURES

5.1 Flammability

Autoignition temperature: 388°C

5.2 Flammability Limits in Air

Flammable limits in air - lower (%): Not determined

Flammable limits in air - upper (%): Not determined

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.

Extinguishing media which must not be used for safety reasons: No information available

Hazardous decomposition products: Burning produces obnoxious and toxic fumes Aldehydes Carbon monoxide (CO) carbon dioxide (CO₂)

Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus pressuredemand, 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.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

- Use personal protective equipment. (*See Section 8)
- Remove all sources of ignition.

- Avoid dust formation.
- Avoid contact with skin and eyes.
- Sweep up to prevent slipping hazard.

6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system. - Do not allow material to contaminate ground water system.

6.3 Methods and material for containment and cleaning up

Shovel into suitable container for disposal.

SECTION 7 ACCIDENTAL RELEASE MEASURES

7.1 Precautions for safe handling

- Avoid contact with skin and eyes.
- Avoid dust formation.
- Workers should be protected from the possibility of contact with molten material during fabrication.
- Low hazard for usual industrial or commercial handling.
- Use personal protective equipment. (See Section 8)
- Precautions: No special precautions required

7.2 Conditions for safe storage, including any incompatibilities

- Store in cool place. Keep at temperatures below 122F (40 °C).
- No special restrictions on storage with other products

SECTION 8 ACCIDENTAL RELEASE MEASURES

8.1 Occupational Exposure limits

See Section 3.

8.2 Personal protective equipment

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 3 are exceeded.
- Consult an industrial hygiene professional prior to respirator selection and use.
- Use a positive-pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where airpurifying respirators may not provide adequate protection.

Eye Protection: Safety glasses with side-shields. Goggles.

Skin Protection: Impervious clothing.

Hand protection: Preventive skin protection.

Hygiene measures: Avoid contact with skin, eyes and clothing.

Engineering measures: Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide appropriate exhaust ventilation at places where dust is formed.

Control parameters: None

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance Description : Opaque Solid (Filament)

Appearance Color : Varies
Odor : Mild
Odor threshold : Not applicable
pH : Not applicable
Melting point/freezing point : Not applicable
Initial boiling point and boiling range : Not applicable
Flash point : Not available
Evaporation rate : Not available
Flammability (solid, gas) : Not available
Upper/lower flammability or explosive limits : Not available
Vapor pressure : Negligible (20°C)
Solubility (ies) : Negligible
Vapor density : Not available
Density : 1.21 g/cc
Partition coefficient : n-octanol/water : Not available
Auto ignition temperature : 482F(250°C)
Decomposition temperature : 388 °C
Viscosity : Not available
Molecular weight : Not available

9.2 Other information

Not available

SECTION 10 STABILITY AND REACTIVITY

- 10.1 **Chemical stability:** Stable under recommended storage conditions
- 10.2 **Materials to avoid:** Oxidizing agents. Strong bases.
- 10.3 **Conditions to avoid:** Temperatures above 446F (230 °C)
- 10.4 **Polymerization:** Not applicable
- 10.5 **Hazardous decomposition products:** Burning produces obnoxious and toxic fumes.
Aldehydes. Carbon monoxide (CO). carbon dioxide (CO₂).

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity : There were no target organ effects noted following ingestion or dermal exposure in animal studies.

Local effects: May cause eye/skin irritation. Product dust may be irritating to eyes, skin and respiratory system. Caused mild to moderate conjunctival irritation in eye irritation studies using rabbits. Caused very mild redness in dermal irritation studies using rabbits (slightly irritating). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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 diarrhoea. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Burning produces irritant fumes.

Mutagenic effects: No data is available on the product itself

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.

Skin: LD50/dermal/rabbit > 2000 mg/kg

Ingestion: LD50/oral/rat > 5000 mg/kg

Further information: No information available

SECTION 12 ECOLOGICAL INFORMATION

12.1 Ecological toxicity

EC50/72h/algae > 1100 mg/L

12.2 Persistence and degradability : No data available

12.3 Bioaccumulative potential : Does not bioaccumulate. Inherently biodegradable.

12.4 Mobility in soil : No data available

12.5 Other hazardous effect : No data available

SECTION 13 DISPOSAL CONSIDERATIONS

THE COMPANY HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 3 (Composition/Information On Ingredients).

13.1 Disposal method

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

13.2 Disposal precaution

Consider the requirements of any applicable waste treatment management regulation.

SECTION 14 TRANSPORT INFORMATION

14.1 UN Number : Not regulated as a hazardous material.

14.2 UN Proper shipping name : Not applicable

14.3 Transport Hazard class : Not applicable

14.4 Packing group : Not applicable

14.5 Marine pollutant : Not applicable

14.6 Special precautions

in case of fire : Not applicable

in case of leakage : Not applicable

SECTION 15 REGULATORY INFORMATION

15.1 US Regulatory information

Sara 313 title III / TSCA Inventory List

STATE REGULATIONS Proposition 65 listed material

15.2 International Regulatory Information

Canada DSL Inventory List

EU EINECS List

Japan (ECL)

Korean chemical inventory

Phillipines (PICCS) inventory

SECTION 16 OTHER INFORMATION

16.1 Information source and references

16.2 Issuing date : 01/June/2017

16.3 Revision number and date

revision number : 01/June/2017

date of the latest revision : 01/June/2017

16.4 Others

Recommended restrictions: None