

Material Safety Data Sheet

1. COMPANY IDENTIFICATION

Product Name	Tough PLA filament
Product Use	Printing material for XYZprinting 3D printer
Company	XYZprinting, Inc.
Address	No.147, Sec. 3, Beishen Rd., Shenkeng Dist., New Taipei City, Taiwan (R.O.C.)
Information Phone No.	886-2-7705 8001
Emergency Phone No.	886-2-7705 8001

2. HAZARD IDENTIFICATION

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 diarrhoea.
Inhalation	Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
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	No information available
Environmental precautions	Not determined See Section 12 for more information.
Flammability	Fine dust dispersed in air may ignite.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance Name	CAS Number	Concentration(%)	Classification	
			Directive 67/548/EEC	Regulation EC No 1272/2008
Poly lactide resin	9051-89-2	90%~100%	Not Classified	Not Classified
Acrylic polymer	-	<10%	-	-

4. FIRST AID MEASURES

Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.
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.
Inhalation	Move to fresh air. Call a physician immediately.
Ingestion	Drink water as a precaution. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Call a physician immediately.
Notes to physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammability

Autoignition temperature 388°C

Flammability Limits in Air

Flammable limits in air - lower (%) Not applicable

Flammable limits in air - upper (%) Not applicable

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 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

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

7. HANDLING AND STORAGE

Safe handling advice	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.
Storage	Store in cool place. Keep at temperatures below 122 °F (50 °C). No special restrictions on storage with other products
Precautions	No special precautions required

8. EXPOSURE CONTROLS MEASURES

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

PERSONAL PROTECTIVE EQUIPMENT

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. 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 air-purifying respirators may not provide adequate protection. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
Hand protection	Preventive skin protection.
Hygiene measures	Avoid contact with skin, eyes and clothing.

Exposure limits See Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Spool, string, strand
Color	White
Physical state	Solid
Odor	Slight
pH	Not applicable
Vapor pressure	Not determined
Vapor density	Not determined
Evaporation rate	Not determined
Density	1.24 g/cc
Boiling point/range	Not applicable
Decomposition temperature	482 °F (250 °C)
Melting point/range	Not determined
Water solubility	Insoluble
Solubility in other solvents	None known

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions
Conditions to avoid	Temperatures above 446 °F (230 °C).
Materials to avoid	Oxidizing agents. Strong bases.
Hazardous decomposition products	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	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 diarrhea.
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.
Skin	LD50/dermal/rabbit > 2000 mg/kg
Ingestion	LD50/oral/rat > 5000 mg/kg

12. ECOLOGICAL INFORMATION

Mobility	No data available
Bioaccumulation	Does not bioaccumulate. Inherently biodegradable.
Ecotoxicity effects	EC50/72h/algae > 1100 mg/L

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 container. Contact manufacturer.

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 2

Contaminated packaging: Empty remaining contents. Do not re-use empty containers. Empty containers should be transported/delivered using a registered waste carrier to local recyclers for disposal.

14. TRANSPORT INFORMATION

U.S. Department of Transportation (DOT)

Proper shipping name	Not regulated as a hazardous material.
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IMDG

Proper shipping name	None
Hazard class	Not regulated.
UN/Id No.	None
Packing group	None

ICAO/IATA

Proper shipping name	None
Hazard Class	Not regulated.
Packing group	None

15. REGULATORY INFORMATION

(Not meant to be all inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate. 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. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

Sara 313 title III: Not Listed

TSCA Inventory List: Listed

STATE REGULATIONS

California Proposition 65: Not Listed

INTERNATIONAL INVENTORIES

Canada DSL Inventory List	Listed
REACH/EU EINECS List	Components are in compliance with and/or are listed.
Japan (ECL)	Listed
Australia (AICS)	Listed
Korean chemical inventory	Listed
Philippines (PICCS) inventory	Not Listed
China inventory of existing chemical substances list	Listed

16. OTHER INFORMATION

None