

Document	Material Safety Data Sheet (MSDS)
Material	<b>Engineering PLA</b>
Version	1.3
Revision date	02-08-2018

1. Identification of the substance / preparation and of the company		
1.1	Trade name	Engineering PLA
1.2	Use of the product	3D-Printer filament
1.3	Supplier	Leapfrog 3D Printers H. Kamerlingh Onnesweg 10 2408 AW Alphen aan den Rijn + 31 (0) 172 503 625 The Netherlands
1.4	Local Supplier Information	Kyocera Document Solutions Level 3, 6 - 10 Talavera Road North Ryde NSW 2113 + 61 (0) 2 9870 3924 Poison Information Centre: 131 126 Australia
1.5	Emergency Phone Number	In case of toxicological emergency contact your doctor

2. Hazards identification		
According to regulation (EC) No 1272/2008 and GHS		
2.1	Classification of the substance or mixture	No risk exists to the health of users if the product is handled and processed properly. Burning produces obnoxious and toxic fumes. Avoid formation of dust and aerosols.
2.2	Label elements	Not applicable
2.3	Other hazards	Dust can cause skin, eye and respiratory tract irritation. Danger of burns in contact with hot polymer.

3. Composition / information on ingredients		
3.1	Substances / mixtures	Polylactic acid
3.2	CAS Number	9051-89-2
3.3	Additional information	This product is not classified as hazardous according to Regulation (EG) 1272/2008 as amended.

4. First aid measures		
4.1	General advice	When processed properly no special hazards are to be expected. Contact a doctor in case of discomfort.
4.2	Skin contact	Wash with soap and water. In case of contact with molten polymer immediately cool the skin with cold water. Medical aid may be required to remove adhering material and for treatment of burns.
4.3	Eye contact	Any material that contacts the eyes should be washed out immediately with plenty of water for at least 15 minutes. Check for and remove any contact lenses.
4.4	Ingestion	Not probable. Seek medical advice in case ingestion occurs.
4.5	Inhalation	After Inhalation of decomposition gases move person into fresh air.

5. Fire fighting measures		
5.1	Extinguishing media	Foam, Water, Carbon Dioxide (CO <sub>2</sub> ), dry chemical, Alcohol resistant foams are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams function but much less effective.
5.2	Unsuitable media	Burning produces obnoxious and toxic fumes: aldehydes Carbon monoxide (CO), Carbon Dioxide(CO <sub>2</sub> ).
5.3	Special hazards arising from the substance or mixture	Burning produces obnoxious and toxic fumes, Aldehydes, carbon oxides (CO <sub>x</sub> ).
5.4	Advice for firefighters	Use self-contained breathing apparatus and full protective clothing.

6. Accidental release measures		
6.1	Personal precautions	Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ensure adequate ventilation, especially in confined areas.
6.2	Environmental precautions	Do not flush into sanitary sewer system. Do not allow material to contaminate groundwater system.
6.3	Methods and materials for containment and cleaning up	Allow to solidify molten material. Avoid dust formation. Sweep up and shovel into suitable containers for disposal.

7. Handling and storage		
7.1	Safe handling	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. Do not smoke when using this product.
7.2	Conditions for safe storage, including any incompatibilities	Product should be stored in a dry and cool place at temperatures between -20°C to +30°C. Avoid direct sunlight.

8. Exposure controls/personal protection		
8.1	Control parameters	None
8.2	Exposure controls	Ensure adequate ventilation, Keep below 230°C.
	Eye protection	Safety glasses with side-shields. Goggles. should be consistent with EN 166, AS/NZS 1336 or equivalent.
	Hand protection	Preventive skin protection. Gloves with insulation for thermal protection when needed. Should be consistent with EN 407, AS/NZS 2161 or equivalent
	Skin and body protection	It is a good industrial practice to minimize skin contact. When material is heated , wear gloves to protect against thermal burns.
	Respiratory protection	Wear NIOSH, European Standard EN 149, AS/NZS 1716 or equivalent approved full or half facepiece (with goggles) respiratory protective equipment when necessary.
	Hygiene measures	Follow good industrial hygiene practices.
	Environmental exposure controls	The product should not be allowed to enter drains, water courses or the soil. Good ventilation (typically 10 air changes per hour) is recommended.

9. Physical and chemical properties		
9.1	Information on basic physical and chemical properties	
	Appearance	Solid filament
	Color	Natural, white, black or silver.
	Odor	Sweet
	Melting point/range	170°C to 180°C
	Ignition temperature	388°C
	Decomposition temperature	>250°C
	Density	1.25g/cm³
	Water solubility	Insoluble

10.	Stability	
10.1	Reactivity	No data available
10.2	Chemical stability	Stable under recommended storage conditions.
10.3	Possibility of hazardous reactions	No hazardous reactions observed under recommended handling and storage conditions.
10.4	Conditions to avoid	Temperatures above 230°C.
10.5	Incompatible materials	Oxidizing agents, Strong bases.
10.6	Hazardous decomposition products	See 5.2

11.	Toxicological information	
11.1	Information on toxicological effects	
	Principle routes of exposure	Eye contact, skin contact, inhalation, ingestion.
	Acute toxicity	Ingestion, skin contact and/or inhalation have no known effect. Product dust may be irritating to eyes, skin and respiratory system.
	Serious eye damage/eye irritation	No data available
	Respiratory or skin sensitization	No data available
	Reproductive toxicity	Not known to cause birth defects or have a deleterious effect on a developing fetus. Not known to adversely affect reproductive functions and organs.
	Carcinogenicity	No data available

12.	Ecological information	
12.1	Toxicity	No data available
12.2	Persistence and degradability	Inherently biodegradable under industrial composting conditions.
12.3	Bioaccumulative potential	Does not bioaccumulate
12.4	Mobility in soil	No data available
12.5	Results of PBT and vPvB assessment	No data available
12.6	Other adverse effects	No data available

13.	Disposal considerations	
13.1	Waste treatment methods	In accordance with local and national regulations

14. Transport information		
14.1	ADR	Not regulated
	RID	Not regulated
	IATA	Not regulated
	IMDG	Not regulated
	Special precautions for user	Not regulated

15. Regulatory information		
15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	Not meant to be all inclusive. Selected regulations represented.
	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
15.2	Chemical safety assessment	No data available

16. Other information	
16.1	The information provided in this Safety Data Sheet (SDS) is based on current knowledge and experience. This information is provided without warranty. This information should help to make an independent determination of the methods to ensure proper and safe use and disposal of the filament.