Document	Material Safety Data Sheet (MSDS)
Material	**HIPS**
Version	1.3
Revision date	02-08-2018

1.	Identification of the substance / preparation and of the company	
1.1	Trade name	HIPS
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	Additional Information	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	This product is not classified according to Regulation (EC) 1272/2008
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	Styrene-butadiene-copolymer, HIPS
3.2	CAS Number	9003-55-8
3.3	Additional information	Preparation does not contain dangerous substances above limits that need to be mentioned in this section according to applicable legislation.

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	Water Fog, Foam, extinguishing powder, carbon dioxide, sand, earth.
5.2	Unsuitable media	Do not use a solid stream as it may scatter and spread fire.
5.3	Special hazards arising from the substance or mixture	In case of fire may be liberated: smoke, styrene-monomer, butadiene, aldehydes and acids (organic),carbon monoxide and carbon dioxide.
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 eat, drink or 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 -20ºC to +30ºC. Avoid direct sunlight. Minimize moisture uptake by leaving it in a sealed package together with the supplied desiccant.

8.	Exposure controls/personal protection	
8.1	Control parameters	The product contains very low levels of residual monomers (Styrene and Butadiene) and process chemicals that may be evolved during thermal processing. As the identity and levels of these components evolved will depend upon the processing conditions (temperature etc.) it is the responsibility of the user to determine the adequacy of any protection or safety measures.
8.2	Exposure controls	Occupational exposure controls.
	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
	Odor	Weak
	Melting point/range	105 ºC - 135 ºC
	Ignition temperature	400ºC
	Decomposition temperature	>300ºC
	Density	1.03 g/cm³
	Water solubility	Insoluble

10.	Stability	
10.1	Reactivity	This product is stable and non-reactive under normal conditions of use, storage and transport.
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	Avoid dust formation. Dust may form explosive mixtures with air. Keep away from sources of ignition - No smoking.
10.5	Incompatible materials	Oxidizing agents, Strong bases.
10.6	Hazardous decomposition products	In case of fire may be liberated: smoke, Styrene-Monomer, butadiene, aldehydes and acids (organic), carbon monoxide and carbon dioxide (CO2).

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	Aquatic toxicity: no evidence of aquatic toxicity.
12.2	Persistence and degradability	Biodegradation: Product is not readily biodegradable. Degradation at UV-radiation/sunlight Environmental half-life period: >=100 days (estimated) Not toxic to sewage organisms In sewage treatment plants it may be separated mechanically.
12.3	Bioaccumulative potential	To avoid bioaccumulation plastics should not be disposed in the sea or in other water environments.
12.4	Mobility in soil	Product is not soluble in water. Substance is heavier than water and sinks. mobility in soil: low.
12.5	Results of PBT and vPvB assessment	This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.
12.6	Other adverse effects	Do not allow to penetrate into soil, water bodies or drains.

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

14.	Transport information	
14.1	UN number	Not regulated as a hazardous material.
	UN proper shipping name	Not applicable
	Transport hazard class(es)	Not applicable
	Packing group	Not applicable
	Environmental hazards	Marine pollutant: No
	Special precautions for user	No dangerous good in sense of these transport regulations.
	Transport in bulk according to Axxex II of MARPOL73/78 and the IBC Code	Not evaluated

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.
	National regulations - Great Britain	Hazchem-Code: -
	National regulations - USA	TSCA Inventory: listed; EPA flags XU TSCA HPVC: not listed Carcinogen Status: IARC Rating: Group 3 OSHA Carcinogen: not listed NTP Rating: not listed Hazard rating systems: NFPA Hazard Rating: Health: 1 (Slight) Fire: 1 (Slight) Reactivity: 0 (Minimal) HMIS Version III Rating: Health: 1 (Slight) Flammability: 1 (Slight) Physical Hazard: 0 (Minimal) Personal Protection: X = Consult your supervisor
	National regulations - Canada	DSL: listed
15.2	Chemical safety assessment	For this substance a chemical safety assessment is not required.

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.