



# Material Safety Data Sheet

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## 1. Identification of the substance/mixture and of the company/undertaking

<b>Product:</b>	PLA for extrusion-based 3D printing
<b>Manufacturer:</b>	Conrad Electronic SE
<b>Address:</b>	Klaus-Conrad-Str. 1, D-92240 Hirschau
<b>Telephone:</b>	+49 (0) 9604 / 40 - 8988
<b>Date:</b>	07.02.2017

### Identified Uses:

For fused deposition modeling (FDM) or fused filament fabrication (FFF) based additive manufacturing and 3D printing processes

## 2. Hazards Identification

### Emergency Overview

Not likely to be an irritant in the solid form. Burning produces obnoxious and toxic fumes. Avoid prolonged contact with skin and contact with eyes. Not likely to form a dust in the solid filament form.

### Potential Acute Health Effects

#### Inhalation:

Not likely to form an inhalable dust in the solid filament form and for the intended use. Aerosols generated during printing may cause shortness of breath, tightness of the chest, a sore throat and cough.

#### Eye:

Direct contact with eyes may cause irritation.

#### Skin:

May cause slight skin irritation.

#### Ingestion:

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

### Potential Chronic Health Effects

Carcinogenic Effects: No known carcinogenic effects

Mutagenic Effects: No known mutagenic effects

Teratogenic Effects: No known teratogenic effects

Developmental Toxicity: No known developmental toxicity



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### 3 . Composition/information on ingredients

Chemical Name	CAS No.	Weight %	Exposure Limits
Poly(lactic acid) resin	9051-89-2	80-100%	None
Acrylic polymer(s)	-	0-20%	None

### 4 . First aid measures

**Inhalation:**

Move to fresh air and keep at rest in a position comfortable for breathing. Call a physician immediately if irritation persists.

**Skin contact:**

Rinse immediately with plenty of water. If skin irritation persists, call a physician. Cool skin rapidly with cold water after contact with hot polymer.

**Eye contact:**

Rinse immediately with plenty of water. 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 for the doctor:**

Treat symptomatically.

### 5 . Fire-fighting measures

**General Information:**

As in any fire, wear self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**Suitable Extinguishing Agents:**

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 may function, but much less effectively.

**Products of Combustion:**

Burning produces obnoxious and toxic fumes, aldehydes, carbon monoxide (CO), and carbon dioxide (CO<sub>2</sub>).

**Special Fire Fighting Procedures:**

Firefighters should wear self-contained breathing apparatus and full fire-fighting turn-out gear (bunker gear). Keep personnel removed and upwind of fire. Water should be used to keep fire-exposed containers cool.

**Special Remarks on Fire and Explosion Hazards:**

Toxic gases/vapors/fumes may emit in a fire.



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### 6 . Accidental release measures

**General:**

Wear gloves when handling hot melt of the material.

**Environmental precautions:**

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

**Methods and material for containment and cleaning up:**

Shovel into suitable container for disposal.

### 7 . Handling and storage

**Precautions:**

No special precautions required.

**Handling:**

Wear gloves when handling molten material. Low hazard for usual industrial or commercial handling.

**Storage:**

Store in cool place. Keep at temperatures below 122°F (50°C). No special restrictions on storage with other products.

### 8 . Exposure controls/personal protection

**Ventilation protection:**

Provide good ventilation during 3D printing processes.

**Skin protection:**

Avoid direct contact to the hot melt of material or wear gloves.

**Eye and face protection:**

Safety glasses if necessary.

**General:**

Wear protective clothing to prevent contact with hot melt materials.



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### 9 . Physical and chemical properties

Appearance:	Filament, Solid
Color:	Various
Odour:	Odorless
pH:	Not applicable
Melting point:	> 140 °C
Boiling point:	Not applicable
Density:	1.22 g/cm <sup>3</sup>
Vapor pressure:	Not applicable
Partition coefficient (n -octanol/water):	Not applicable
Solubility(ies):	Not determined
Flash point:	Not determined
Auto-ignition temperature:	> 350 °C

### 10 . Stability and reactivity

**Stability:**

Stable under recommended storage conditions

**Polymerization:**

Not applicable

**Dangerous Decomposition Products:**

Burning produces obnoxious and toxic fumes. Aldehydes. Carbon monoxide (CO). carbon dioxide (CO<sub>2</sub>).

**Conditions to avoid:**

Temperatures above 446F (230 ° C).

**Materials to avoid:**

Oxidizing agents. Strong bases.

### 11 . Toxicological information

**Routes of entry:**

N.A.

**Acute toxicity:**

Not likely to cause targeted organ effects or skin allergic reactions.



## 12 . Ecological information

**Mobility:**

No data available

**Bioaccumulation:**

The main resin is biodegradable.

**Ecotoxicity effects:**

Data not available.

## 13 . Disposal considerations

**Waste Disposal Methods:**

In accordance with local and national regulations. Do not contaminate ponds, waterways or ditches with chemical or used container. Contact manufacturer if needed.

## 14 . Transport information

**No a DOT controlled material (United States)**

Proper Shipping Name:	Not regulated
Hazard Class:	Not regulated
UN. NO.:	Not regulated
Packing Group:	Not regulated
IMDG EMS:	Not regulated



## 15 . Regulatory information

### European/International Regulations

This product is on the European Inventory of Existing Commercial Chemical Substances.

### European Labeling in Accordance with EC Directives

Hazard Symbols: N/A

Risk phrases: N/A

Safety phrases: N/A

### HMIS (U.S.A.):

Health Hazard: 0

Fire Hazard: 1

Reactivity: 0

### Personal Protection:

National Fire Protection Association(U.S.A.):

Health: 0

Flammability: 1

Reactivity: 0

### Specific Hazard:

Federal and State Regulations: TSCA 8(b) inventory: Listed

Canada--WHMIS: Not controlled

For details regulations you should contact the appropriate agency in your country.

## 16 . Other information

### Declare to reader

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. This shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.