



# Material Safety Data Sheet

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

<b>Product:</b>	Polymaker G105 3D printing filament for extrusion-based 3D printing processes
<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>	31.03.2017

## 2. Hazards Identification

### 2.1 Classification of the substance of mixture

#### **2.1.1 Classification according to Directive 67/548/EEC or 1999/45/EC as amended**

This substance does not meet the criteria for classification according to Directive 67/548/EEC as amended.

#### **2.1.2 Classification according to Regulation (EC) No 1272/2008 as amended**

This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

### 2.2 Label elements

Not applicable.

### 2.3 Other hazards

Not likely to be an irritant in the solid form. Danger of burns when heated/molten material is handled.

## 3. Composition/information on ingredients

### 3.1 Substances

Chemical Name	CAS No.	Weight %	Exposure Limits
1,4-Benzenedicarboxylic acid, 1,4-dimethyl ester, polymer	25038-91-9	> 90%	None



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### **4. First aid measures**

#### **4.1 Description of first aid measures**

##### **4.1.1 Inhalation:**

Move to fresh air. Call a physician immediately if irritation persists.

##### **4.1.2 Skin contact:**

Remove contaminated clothing and shoes. Get medical attention if skin symptoms occurred. If burned by contact with hot material, cool molten material adhering to skin as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn. Wash contaminated clothing and shoes before reuse.

##### **4.1.3 Eye contact:**

Get medical attention if eye symptoms occurred. In case of contact with molten substance, immediately flush eyes with water for at least 15 minutes. Get medical attention immediately.

##### **4.1.4 Ingestion:**

Get medical attention if swallowed amount of substance

#### **4.2 Most important symptoms and effects, both acute and delayed**

Burns resulted from contacting or handling heated/molten materials

#### **4.3 Indication of any immediate medical attention and special treatment needed**

Call emergency medical service. Get medical advice/attention if you needed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. If burned by contact with molten material, cool quickly as possible with water, and then go to see a physician for treatment of burn.

### **Section . Fire-fighting measures**

#### **5.1 Suitable extinguishing media**

Suitable extinguishing media: CO<sub>2</sub>, water, sand

#### **5.2 Special hazards arising from the substance or mixture**

Thermal decomposition products: Not available.

Hazardous combustion products: CO<sub>2</sub>, CO.

Unusual fire and explosion hazards: No explosion hazard

#### **5.3 Advice for fire fighters**

Wear positive pressure self-contained breathing apparatus (SCBA). - Structural fire fighters' protective clothing will only provide limited protection.



## **6. Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Stop leak if you can do it without risk. Isolate exposed area. Keep unauthorized personnel away. Use certificated protective equipment. Ventilate the leaked area.

### **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 materials for containment and cleaning up**

Do not touch or walk through spilled material. Prevent entry into waterways, sewers, basements or confined areas.

## **7. Handling and storage**

### **7.1 Precautions for safe handling**

Avoid contact with molten material. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures.

### **7.2 Conditions for safe storage**

Keep container closed. Store container in a well dry/cool place. Keep away from waterways and sewers. Keep away from any source of ignition.



## **8. Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Occupational exposure limits**

Specific exposure limits have not been established or are not applicable unless listed below.

#### **Regulation in Korea:**

Not applicable

#### **US (NIOSH/OSHA ACGIH):**

- NIOSH- TWA: Not applicable

- OSHA- TWA: Not applicable

- ACGIH- TWA: Not applicable

#### **EU Regulation:**

Not applicable

#### **Biological Exposure Index:**

Not applicable

#### **Biological limit values:**

No biological exposure limits noted for the ingredient(s)

#### **Recommended monitoring procedures:**

Not available

#### **Derived no-effect level (DNEL):**

Not available

#### **Predicted no effect concentrations (PNECs):**

Not available

### **8.2 Engineering controls**

Provide local exhaust ventilation system or other engineering controls to keep the airborne below their respective threshold limit value. Check legal suitability of exposure level.

### **8.3 Personal protective equipment**

#### **Respiratory Protection:**

Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.

#### **Eye Protection:**

An eye wash unit and safety shower station should be available nearby work place. Wear safety glasses to protect eyes from scattering toxic substance.

#### **Skin Protection:**

It is a good industrial hygiene practice to minimize skin contact. When material is heated, wear gloves to protect against thermal burns.



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### 9. Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance:	Filament, Solid
Color:	Yellow/Grey
Odor:	Slight odor
Odor threshold:	Not available
pH:	Not applicable
Melting point/freezing point:	Not applicable
Boiling point:	Not applicable
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability:	Not available
Upper/lower flammability or explosive limits:	Not available
Vapor pressure:	Negligible (20 °C)
Vapor density:	Not applicable
Relative density:	1.25 g/ml (25 °C)
Solubility:	Not available
Partition coefficient (n-octanol/water):	No data available
Auto-ignition temperature:	454 °C
Decomposition temperature:	Onset of decomposition > 350 °C
Viscosity:	Not applicable

### 10. Stability and reactivity

#### 10.1 Reactivity

Stable at normal conditions.

#### 10.2 Chemical stability

Material is stable under normal conditions.

#### 10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur.

#### 10.4 Conditions to avoid

Avoid extreme heat. Avoid all sources of ignition: heat, sparks, open flames, etc.

#### 10.5 Incompatible materials

Not available

#### 10.6 Hazardous decomposition products

Carbon oxides



## **11. Toxicological information**

### **11.1 Likely routes of exposure**

**Inhalation:**

Dust irritates the respiratory system, and may cause coughing and difficulties in breathing.

**Skin contact:**

Molten material will produce thermal burns.

**Eye contact:**

Molten material will produce thermal burns.

**Ingestion:**

May cause discomfort if swallowed.

### **11.2 Symptoms**

Dust may irritate throat and respiratory system and cause coughing. Direct contact with eyes may cause temporary irritation.

### **11.3 Information on toxicological effects**

Acute toxicity: Not available.

Skin corrosion/irritation: Molten material will produce thermal burns.

Serious eye damage/eye irritation: Molten material will produce thermal burns.

Respiratory sensitization: Not available.

Skin sensitization: Not available.

Germ cell mutagenicity: Not available.

Carcinogenicity: IARC, NTP, OSHA, ACGIH, EU Regulation 1272/2008, US EPA: not listed.

Reproductive toxicity: Not available

Specific target organ toxicity - single exposure: Not available

Specific target organ toxicity - repeated exposure: Not available

Aspiration hazard: Not available

Mixture versus substance information: Not applicable.

Other information: Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure.



## **12. Ecological information**

### **12.1 Toxicity**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

### **12.2 Persistence and degradability**

No data available.

### **12.3 Bioaccumulative potential**

No data available.

### **12.4 Mobility in soil**

Not available

### **12.5 Other adverse effects**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

## **13. Disposal considerations**

### **13.1 Waste treatment 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**

### **ADR**

Not regulated as dangerous goods.

### **RID**

Not regulated as dangerous goods.

### **ADN**

Not regulated as dangerous goods.

### **IATA**

Not regulated as dangerous goods.

### **IMDG**

Not regulated as dangerous goods.

### **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

This substance/mixture is not intended to be transported in bulk.



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### **15. Regulatory information**

#### **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture EU regulations**

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I**

Not listed.

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II**

Not listed.

**Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended**

Not listed.

**Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

#### **Authorisations**

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended**

Not listed.

#### **Restrictions on use**

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work**

Not listed.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding**

Not listed.





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### Other EU regulations

**Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances**

Not listed.

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work**

Not listed.

**Directive 94/33/EC on the protection of young people at work**

Not listed.

### Other regulations

This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

### National regulations:

Not available.

### 15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out.

## 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.