

## Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP) and (EC) No. 1907/2006 (REACH)

Initial preparation date: 2020.08.05

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### Rigid 10K Resin

#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### 1.1 Product identifier

**Product Name:** Rigid 10K Resin

**Product code:** FLRG1001

##### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified uses:** For use in Formlabs SLA Printers

**Uses advised against:** Not determined or not applicable.

**Reasons why uses advised against:** Not determined or not applicable.

##### 1.3 Details of the manufacturer/supplier of the safety data sheet

**Manufacturer:**

**United States**

Formlabs, Inc

35 Medford St

Suite 201 Somerville, MA 02143

+1 617 855 0762

sds@formlabs.com

**Supplier:**

**Germany**

Formlabs GmbH

Nalepastr. 18

12459 Berlin

+49 30 555 795 880

##### 1.4 Emergency telephone number:

1-800-424-9300 (24/7)

#### SECTION 2: Hazard(s) identification

##### 2.1 Classification of the substance or mixture:

**Classification according to Regulation (EC) No. 1272/2008 (CLP):**

Skin sensitization, category 1

Chronic aquatic hazard, category 2

**Hazard-determining components of labeling:**

Urethane Dimethacrylate

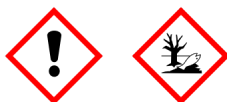
Isobornyl Methacrylate

**Additional Information:** None

##### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008 (CLP)**

**Hazard pictograms:**



**Signal word:** Warning

**Hazard statements:**

H317 May cause an allergic skin reaction

H411 Toxic to aquatic life with long lasting effects

**Precautionary statements:**

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P272 Contaminated work clothing should not be allowed out of the workplace

P280 Wear protective gloves/protective clothing/eye protection/face protection

P273 Avoid release to the environment

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P302+P352 IF ON SKIN: Wash with plenty of soap and water  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention  
P363 Wash contaminated clothing before reuse  
P391 Collect spillage  
P501 Dispose of contents/container in accordance with local/regional/national regulations

**2.3 Other hazards:** None known

## SECTION 3: Composition/information on ingredients

**3.1 Substance:** Not applicable.

**3.2 Mixture:**

Identification	REACH Registration No.	Name	Classification according to Regulation (EC) No. 1272/2008 (CLP)	Weight %
CAS number: 72869-86-4 EC number: 276-957-5	–	Urethane Dimethacrylate	Skin Sens. 1; H317 Aquatic Chronic 2; H411	15-25
CAS number: 7534-94-3 EC number: 231-403-1	–	Isobornyl Methacrylate	Skin Irrit. 2; H315 STOT SE 3 (RI); H335 Aquatic Chronic 3; H412 Eye Irrit. 2; H319	7-10
CAS number: 7631-86-9 EC number: 231-545-4	–	Filler	Not classified	55-75

**Additional information:** None

**Full Text of H and EUH statements:** See section 16

## SECTION 4: First aid measures

**4.1 Description of first aid measures**

**General notes:**

Show this Safety Data Sheet to the doctor in attendance.

**Following inhalation:**

If inhaled, remove person to fresh air and place in a position comfortable for breathing. If respiratory symptoms develop or persist, seek medical advice/attention.

**Following skin contact:**

Wash affected area with plenty of soap and water. Remove contaminated clothing and launder before reuse. If skin irritation develops or persists, seek medical advice/attention.

**Following eye contact:**

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

**Following ingestion:**

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

**Self-Protection of the first aider:**

Not determined or not available.

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

**Acute symptoms and effects:**

Dermal exposure may cause an allergic skin reaction. Symptoms may include irritation, redness, pain, rash, inflammation, itching, burning and dermatitis.

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### Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

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

#### Specific treatment:

Not determined or not available.

#### Notes for the doctor:

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical, or alcohol resistant foam.

#### Unsuitable extinguishing media:

Do not use water jet.

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

Thermal decomposition may produce irritating/toxic fumes/gases.

### 5.3 Advice for firefighters

#### Personal protection equipment:

Not determined or not applicable.

#### Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts.

Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers.

Avoid unnecessary run-off of extinguishing media which may cause pollution.

## SECTION 6: Accidental release measures

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

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

### 6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

### 6.3 Methods and material for containment and cleaning up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

### 6.4 Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

### 7.2 Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

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## 7.3 Specific end use(s):

Refer to Section 1 (Recommended Use).

## SECTION 8: Exposure controls/personal protection



### 8.1 Control parameters

Only those substances with limit values have been included below.

#### Occupational Exposure limit values:

No occupational exposure limits noted for the ingredient(s).

#### Biological limit values:

No biological exposure limits noted for the ingredient(s).

#### Derived No Effect Level (DNEL):

Not determined or not applicable.

#### Predicted No Effect Concentration (PNEC):

Not determined or not applicable.

#### Information on monitoring procedures:

Not determined or not applicable.

### 8.2 Exposure controls

#### Appropriate engineering controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

#### Personal protection equipment

##### Eye and face protection:

Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

##### Skin and body protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

##### Respiratory protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

#### General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

#### Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

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Product (substance / mixture) related measures to prevent exposure:	Not determined or not applicable.
Instruction measures to prevent exposure:	Not determined or not applicable.
Organisational measures to prevent exposure:	Not determined or not applicable.
Technical measures to prevent exposure:	Not determined or not applicable.

### Risk management measures to control exposure:

Not determined or not applicable.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	White Liquid
Odor	Characteristic acrylate
Odor threshold	Not determined or not available.
pH	Not determined or not available.
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	>100°C
Flash point (closed cup)	>93.5°C
Evaporation rate	Not determined or not available.
Flammability (solid, gas)	Not Flammable
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Vapor density	Not determined or not available.
Density	1.63 g/cm <sup>3</sup>
Relative density	Not determined or not available.
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Dynamic viscosity	1896 cps @ 25°C; 933 cps @ 35°C
Kinematic viscosity	Not determined or not available.
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

### 9.2 Other information

## SECTION 10: Stability and reactivity

### 10.1 Reactivity:

Not reactive under recommended handling and storage conditions.

### 10.2 Chemical stability:

Stable under recommended handling and storage conditions.

### 10.3 Possibility of hazardous reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

### 10.4 Conditions to avoid:

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.  
Avoid storage >38°C (100°F) and exposure to light/direct sunlight and heat.

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#### 10.5 Incompatible materials:

Polymerization initiators, including peroxides, strong oxidizing agents, alcohols, copper, copper alloys, carbon steel, iron, rust, and strong bases.

#### 10.6 Hazardous decomposition products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:** No data available.

**Substance data:**

Name	Route	Result
Isobornyl Methacrylate	oral	LD50 Rat: >2000 mg/kg
	dermal	LD50 Rabbit: >3000 mg/kg

##### Skin corrosion/irritation

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:**

Name	Result
Isobornyl Methacrylate	Causes skin irritation

##### Serious eye damage/irritation

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:**

Name	Result
Isobornyl Methacrylate	Causes serious eye irritation

##### Respiratory or skin sensitization

**Assessment:**

May cause an allergic skin reaction.

**Product data:**

No data available.

**Substance data:**

Name	Result
Urethane Dimethacrylate	May cause an allergic skin reaction.

##### Carcinogenicity

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:** No data available.

**Substance data:** No data available.

**International Agency for Research on Cancer (IARC):** None of the ingredients are listed.

**National Toxicology Program (NTP):** None of the ingredients are listed.

##### Germ cell mutagenicity

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:** No data available.

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**Substance data:** No data available.

### Reproductive Toxicity

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:** No data available.

### Specific target organ toxicity (single exposure)

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:**

Name	Result
Isobornyl Methacrylate	May cause respiratory irritation

### Specific target organ toxicity (repeated exposure)

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:** No data available.

### Aspiration toxicity

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:**

No data available.

**Substance data:** No data available.

### Information on likely routes of exposure:

No data available.

### Symptoms related to the physical, chemical and toxicological characteristics:

No data available.

### Other information:

No data available.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Acute (short-term) toxicity

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:** No data available.

**Substance data:**

Name	Result
Isobornyl Methacrylate	LC50 Danio rerio: 1.79 mg/L (96 hours)
	EC50 Daphnia magna: 2.57 mg/L (48 hours)

#### Chronic (long-term) toxicity

**Assessment:**

Toxic to aquatic life with long lasting effects.

**Product data:** No data available.

**Substance data:**

Name	Result
Isobornyl Methacrylate	NOEC Daphnia magna: 0.233 mg/L (21 days)

### 12.2 Persistence and degradability

**Product data:** No data available.

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#### Substance data:

Name	Result
Urethane Dimethacrylate	This substance is not readily biodegradable.
Isobornyl Methacrylate	Readily biodegradable

#### 12.3 Bioaccumulative potential

**Product data:** No data available.

**Substance data:** No data available.

#### 12.4 Mobility in soil

**Product data:** No data available.

#### Substance data:

Name	Result
Urethane Dimethacrylate	This substance is expected to distribute between the water column and organic soil and sediment particles.

#### 12.5 Results of PBT and vPvB assessment

##### Product data:

**PBT assessment:** This product does not contain any substances that are assessed to be a PBT.

**vPvB assessment:** This product does not contain any substances that are assessed to be a vPvB.

##### Substance data:

##### PBT assessment:

Urethane Dimethacrylate	This substance is not PBT.
Isobornyl Methacrylate	This substance is not PBT

##### vPvB assessment:

Urethane Dimethacrylate	This substance is not vPvB.
Isobornyl Methacrylate	This substance is not vPvB

#### 12.6 Other adverse effects: No data available.

#### 12.7 Hazard to the ozone layer

**Assessment:** Based on available data, the classification criteria are not met.

**Product data:** No data available.

**Substance data:** No data available.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### 13.1.1 Product / Packaging disposal:

Do not discharge into public wastewater or surface waters. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities.

**Waste codes / waste designations according to LoW:** Not determined or not available.

##### 13.1.2 Waste treatment-relevant information: Not determined or not available.

##### 13.1.3 Sewage disposal-relevant information: Not determined or not available.

##### 13.1.4 Other disposal recommendations: Dispose in a safe manner in accordance with local and national regulations. Do not allow the product to be released into the environment.

### SECTION 14: Transport information

#### International Carriage of Dangerous Goods by Road/Rail (ADR/RID)

UN number	UN 3082
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UN proper shipping name	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer	
UN transport hazard class(es)	9	
Packing group	III	
Environmental hazards	Marine Pollutant	
Special precautions for user	None	
Additional Information	This product is not regulated as a dangerous good when transported in sizes of < 5L or <5 kg provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	


### International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number	UN 3082	
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer	
UN transport hazard class(es)	9	
Packing group	III	
Environmental hazards	Marine Pollutant	
Special precautions for user	None	
Additional Information	This product is not regulated as a dangerous good when transported in sizes of < 5L or <5 kg provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	

### International Maritime Dangerous Goods (IMDG)

UN number	UN 3082	
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer	
UN transport hazard class(es)	9	
Packing group	III	
Environmental hazards	Marine Pollutant	
Special precautions for user	None	
Additional Information	This product is not regulated as a dangerous good when transported in sizes of < 5L or <5 kg provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	

### International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number	UN 3082	
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Methacrylate Polymer	
UN transport hazard class(es)	9	
Packing group	III	
Environmental hazards	Marine Pollutant	
Special precautions for user	None	

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<b>Additional Information</b>	This product is not regulated as a dangerous good when transported in sizes of $\leq 5L$ or $\leq 5\text{ kg}$ provided the packaging meets the general provisions of 5.0.2.4.1, 5.0.2.6.1 and 5.0.2.8.
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Transport in bulk according to Annex II of MARPOL and the IBC Code	
<b>Bulk Name</b>	None
<b>Ship type</b>	None
<b>Pollution category</b>	None

## SECTION 15: Regulatory information

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

#### European regulations

**Inventory listing (EINECS):** All ingredients are listed or exempt.

**REACH SVHC candidate list:** None of the ingredients are listed.

**REACH SVHC Authorizations:** None of the ingredients are listed.

**REACH Restriction:** None of the ingredients are listed.

**Water hazard class (WGK) (Product):**

**Water hazard class (WGK) (Substance):**

Ingredient Name	CAS	Class
Urethane Dimethacrylate	72869-86-4	Water hazard class 1: slightly hazardous to water
Isobornyl Methacrylate	7534-94-3	Water hazard class 1: slightly hazardous to water

#### Other regulations

**Germany TA Luft:** None of the ingredients are listed.

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

## SECTION 16: Other information

**Abbreviations and Acronyms:** None

**Classification procedure:**

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Skin sensitization, category 1	Calculation method
Chronic aquatic hazard, category 2	Calculation method

**Summary of classification(s) in section 3:**

Skin Sens. 1	Skin sensitization, category 1
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3 (RI)	Specific target organ toxicity - single exposure, category 3, respiratory tract irritation
Aquatic Chronic 3	Chronic aquatic hazard, category 3
Eye Irrit. 2	Eye Irritation, category 2

**Summary of hazard statements in section 3:**

H317	May cause an allergic skin reaction
H315	Causes skin irritation
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects
H319	Causes serious eye irritation

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### Disclaimer:

This product has been classified in accordance with EC No. 1272/2008 (CLP) and EC No. 1907/2006 (REACH). The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

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**End of Safety Data Sheet**