


optiprint


I-B-T 385

3D printing resin for additive manufacturing of transfer guides for bracket positioning

Safety Data Sheet

Created on: 29.11.2021

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Signal word: hazard

1. Description of the substance or mixture and the company

1.1. Product identifier: Additive plastic

1.2 Application: Methacrylate-based resin 3D printing systems with 385 nm light sources for additive manufacturing of transfer guides for bracket positioning

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2. Potential hazards

2.1 Classification of substance or mixture according to Regulation (EC) No. 1272/2008:

Skin irrit.	Cat. 2	H315
Skin sens	Cat. 1	H317
Eye irrit.	Cat. 2	H319
Aquatic chronic	Cat. 4	H413

2.2. Identifying elements according to Regulation (EC) No. 1272/2008:

Symbols and signal word of product



Signal word: hazard

Hazard warnings:

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H335	Can irritate the respiratory tract
H413/412	May be harmful to aquatic life with long lasting effects

Safety Tips:

P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash contaminated skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/containers in accordance with local regulations.

2.3 Other hazards:

3. Composition / information on ingredients

3.1 Substances

This product is a mixture

3.2 Mixtures

Composition / information on ingredients

Reagent	Percentage	EC No.: CAS No. REACH Registration No.	Classification according to Regulation (EC) No. 1272/2008	Hazard class and category
Difunktionale Methacrylate	< 45	Company Secret	H413	Aquatic Chronic 4
Aliphatic urethane Acrylate	< 40	Company Secret		
Isobornylmethacrylat	< 20	Company Secret	H315 H319 H335 H412	Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 Aquatic Chronic 3

Tetraethylene glycol Dimethacrylate	< 10	Company Secret	H315 H319	Skin Irrit. Eye Irrit.	2 2
Phosphine oxide	< 2	Company Secret	H317 H361 H411	Skin Sens Repr Aquatic chronic	1 2 1

4. First aid measures

4.1 Description of first aid measures

General information: Immediately remove stained and soaked clothing. In all cases of doubt of if symptoms are present, seek medical advice.

If consciousness is lost, place in the recovery position and seek medical advice.

After inhalation: Ensure that there is fresh air. If the product irritates the respiratory tract: Consult a doctor.

After contact with skin: Wash out and rinse with plenty of soap and water.

After contact with eyes: In the event of contact with the eyes, remove contact lenses and immediately rinse with running water for 10-15 minutes while keeping the eyes open, and see an eye specialist.

After swallowing: Never administer something orally to an unconscious person or someone who is experiencing cramps. Consult a doctor immediately. Prevent vomiting.

4.2 The most significant acute and delayed occurring symptoms and impact

Skin contact: May cause an allergic skin reaction.

4.3 Information about emergency medical aid or special treatment

Note for the physician: Treat symptomatically

5. Fire-fighting procedures

5.1. Solvents

Suitable solvents: Water spray, foam, dry fire extinguisher or carbon dioxide.

Unsuitable solvents: Do not use a water jet as an extinguishing agent, as this will cause the fire to spread.

5.2. Particular hazards arising from substance or mixture

Hazardous decomposition products: Thermal decomposition or combustion products may contain the following substances: Carbon oxides.

5.3. Information for fire-fighting:

Safety precautions during fire-fighting: No actions should be taken without appropriate training or which are associated with personal risk.

Particular protective equipment for fire-fighters: Wear self-contained breathing apparatuses (SCBA) and suitable protective clothing.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: At work, wear suitable protective clothing, including gloves, safety goggles / face guard, respiratory protection, boots, or other clothing or an apron as appropriate.

Suitable respiratory protection in the event of inadequate ventilation.

6.2. Environmental protection measures

Environmental protection measures to prevent discharge into the environment.

6.3. Methods and material for retention and cleaning

Methods for cleaning: No smoking, sparks, flames or other ignition sources near spillages. Bind leaked material with sand or another inert absorbent. Collect it and fill a suitable disposal bin, then seal securely. Containers with collected spilled material must have the correct hazard labeling. Spillages must be collected and disposed of in accordance with the information in Section 13.

6.4. Reference to other sections

Reference to other sections: For information on personal protective equipment, see Section 8. Section 13 contains information about waste disposal.

7. Handling and storage

7.1. Safety precautions for safe handling

Safety precautions during use: Avoid contact with the eyes and skin. Wash contaminated skin thoroughly after handling. The hands and all contaminated parts of the body must be washed with soap and water before leaving the factory premises. Keep away from heat, sparks and open flame. Mechanical suction is required if dust is discharged during handling. Open and handle containers with care. At work, wear suitable safety equipment in the event of longer exposure and / or high concentrations of vapors, spray or mist.

General work hygiene measures

When using the product, do not eat, drink or smoke.

7.2. Conditions for safe storage, taking cases of incompatibility into account

Safety precautions for storage

Store in a cool and dry place in a tightly sealed original container.

Store at temperatures between 5°C and 30°C. Keep away from frost and direct sunlight. Keep away from hot surfaces, sparks, open flames and other types of ignition sources. Do not smoke.

7.3. Specific end uses

Intended end use(s)

The intended uses of this product are described in Section 1.2.

8. Limitation and monitoring of exposure/personal protective equipment

8.1 Parameters to be monitored:

No maximum allowable concentration(s) is/are known for the ingredient(s).

8.2 Limitation and monitoring of exposure

Protective equipment



Suitable technical controller:

Adequate room ventilation and local aspiration must be ensured. The maximum allowable concentration of the product or ingredients must be observed.

Eye/face protection:

Eye protection corresponding to a recognized standard should be worn if a risk assessment shows that eye contact is possible. The following personal protective clothing should be worn: Chemical safety goggles. Wear close-fitting chemical safety goggles or face protection.

Hand protection:

Wear protective gloves. In accordance with the data specified by the protective glove manufacturers, it is required while using them to check whether the gloves maintain their repellent properties and to change them as soon as damage is detected. In the case of exposure up to 8 hours, protective gloves made of the following material must be worn: Nitrile rubber.

Other skin and personal protection:

Avoid contact with the skin. Wear suitable clothing to prevent possible skin contact.

Hygiene measures:

Wash contaminated skin thoroughly after handling. Before removing the clothing, wash contaminated clothing and skin immediately with plenty of water. Immediately remove all contaminated garments and wash before wearing them again. Contaminated work clothing should not be allowed out of the workplace. When using the product, do not eat, drink or smoke.

Respiratory protection:

If ventilation is inadequate, suitable respiratory protection must be worn. Wear a protective mask with full face protection and the following filter cartridge: Filter against organic vapors. Highly effective particle filters.

9. Physical and chemical properties

9.1 Information about the fundamental physical and chemical properties

	Value	Unit
Appearance	Liquid	
Odor	Ester	
Color	Clear transparent	
Melting point	Not determined	
Initial boiling point and boiling range	Not determined	
Flash point	> 250	°C
Inflammability (solid, gaseous)	Not determined	
Upper/lower inflammability or explosion limits	Not determined	
Vapor pressure	Not determined	
Relative density	1.12	g/cm ³
Solubility	Insoluble in water	
Soluble in most organic solvents		
Viscosity	Approx. 700-1200	Pa s
pH	6-8	

9.2 Other information

10. Stability and reactivity

10.1 Reactivity

Reactivity: No information is available

10.2 Chemical stability

Stability: Stable at normal room temperatures

10.3 Possible hazardous reactions

Possible hazardous reactions May polymerize

10.4 Conditions to be avoided

Incompatible conditions: Reaction with light, risk of polymerization. Keep away from heat, flames and other ignition sources. Do not expose to high temperatures or direct sunlight. Avoid contact with strong oxidizers

10.5 Incompatible materials

Incompatible materials Keep away from radical-forming initiators, peroxides, strongly alkaline substances and reactive metals to prevent exothermic polymerization reactions.

10.6 Hazardous decomposition products

Hazardous decomposition products: Carbon oxides

11. Toxicological information

11.1 Information about toxicological effects

Difunktionale Methacrylate (at 100%)

Acute toxicity – oral LD ₅₀	> 2000 mg/kg, oral, rat
Acute toxicity – dermal LD ₅₀	> 2000 mg/kg, dermal, rat
Acute toxicity – inhalative LC ₅₀	No information available
Caustic/irritant effect on the skin	Does not cause irritation
Severe eye damage/irritation	Does not cause irritation
Respiratory tract sensitization	No information available
Skin sensitization	Sensitizing
Germ cell mutagenicity	Bacterial reverse mutation test: Negative.
Carcinogenicity	No information available
Reproductive toxicity	Fertility - NOAEL, 1000 mg/kg KG/day, oral, rat F1
Specific target organ toxicity (repeated exposure)	STOT - repeated exposure NOAEL 300 mg/kg KG/day, oral, rat

Aliphatic urethane Acrylate (at 100%)

Acute toxicity – oral LD ₅₀	540 mg/kg, oral, rat
Acute toxicity – dermal LD ₅₀	>2000 mg/kg, dermal, rabbit
Acute toxicity – inhalative LC ₅₀	No information available
Caustic/irritant effect on the skin	May cause skin irritation.
Severe eye damage/irritation	Can cause severe eye irritation.
Respiratory tract sensitization	No information available
Skin sensitization	Not sensitizing
Germ cell mutagenicity	Gen-Mutation: negativ.
Carcinogenicity	NOAEL 1.5 mg/kg, dermal, mouse
Reproductive toxicity - Fertility	Fertility: - NOAEL 200 mg/kg/d, oral, rat P
Reproductive toxicity - Development	Embryotoxizität: - NOAEL: 75 mg/kg KG/day, oral, rabbit
Specific target organ toxicity (repeated exposure)	NOAEL 25 mg/kg KG/day, oral, rat

Phosphine oxide (at 100%)

Acute toxicity – oral LD ₅₀	No information available
Acute toxicity – dermal LD ₅₀	>2000 mg/kg, dermal, rat
Acute toxicity – inhalative LC ₅₀	No information available
Caustic/irritant effect on the skin	No information available
Severe eye damage/irritation	No information available
Respiratory tract sensitization	No information available
Skin sensitization	No information available
Germ cell mutagenicity / genotoxicity - in vitro	No information available
Carcinogenicity	No information available
Reproductive toxicity - fertility	Suspected of damaging fertility or the unborn child
Reproductive toxicity - Development	No information available
Specific target organ toxicity (repeated exposure)	No information available

12 Environment-related information

12.1 Toxicity

Difunktionale Methacrylate (at 100%)

Acute toxicity - fish	LC50, 96 hours: 100 mg/l, Brachydanio rerio (zebrafish)
Acute toxicity - invertebrate aquatic animals	EC ₅₀ , 48 hours: > 100 mg/l, Daphnia magna
Acute toxicity - aquatic plants	NOEC, 72 hours: > 100 mg/l, Desmodesmus subspicatus
Acute toxicity - microorganisms	NOEC, 28 days: 14.3 mg/l, activated sludge

Aliphatic urethane Acrylate (at 100%)

Acute toxicity - fish	LC50, 96 hours: 3,2 mg/l, fish
Acute toxicity - invertebrate aquatic animals	EC ₅₀ , 48 hours: 13 mg/l, Daphnia magna
Acute toxicity - aquatic plants	NOEC, 96 hours: 0.31 mg/l, Desmodesmus subspicatus
Acute toxicity - microorganisms	EC ₅₀ , 3 hours: 100 mg/l, activated sludge

Phosphine oxide (at 100%)

Acute toxicity - fish	No information available
Acute toxicity - invertebrate aquatic animals	No information available
Acute toxicity - aquatic plants	No information available
Acute toxicity - microorganisms	No information available

12.2. Persistence and degradability

The product is not easily biodegradable.

12.3. Bioaccumulation potential

Difunktionale Methacrylate (at 100%)	
Distribution coefficient	log Kow: 5.30-5.62
Aliphatic urethane Acrylate (at 100%)	
Distribution coefficient	log Kow: 1.69
Phosphine oxide (at 100%)	
Distribution coefficient	No information available

12.4 Mobility on the ground

Difunktionale Methacrylate (at 100%)	
Adsorption/desorption coefficient	- Log Koc: 3.69~3.88 @ 20°C
Aliphatic urethane Acrylate (at 100%)	
Adsorption/desorption coefficient	not determined
Phosphine oxide (at 100%)	
Adsorption/desorption coefficient	No information available

12.5 Results of PBT and vPvB assessment

Difunktionale Methacrylate
This substance must not be classified as PBT or vPvB in accordance with the currently valid EU classification criteria.
Aliphatic urethane Acrylate (at 100%)
According to the currently valid EU classification criteria, this substance is not to be classified as PBT or vPvB.

Phosphine oxide

No information available

13. Disposal instructions

13.1 Procedure for waste disposal

Proper disposal/product

Disposal in accordance with regulatory requirements.

Proper disposal/packaging

May be disposed of in accordance with local regulatory requirements.

Ecology - waste materials

Avoid discharge into the environment

14. Transport information

14.1 UN No.

none

14.2 Proper UN shipping name

none

14.3 Transport hazard classes

No dangerous goods pursuant to transportation regulations.

14.4 Packaging group

none

14.5 Environmental hazards

none

14.6 Special precautions for transport

none

14.7 Bulk transport in accordance with Annex II of the MARPOL Convention 73/79 pursuant to IBC Code

No

15. Legal regulations

15.1. Regulations on safety, health and environmental protection/specific laws for the substance or mixture

EU regulations

Information about Regulation (EC) No. 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register:

irrelevant

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer:

irrelevant

Regulation (EC) No. 648/2004 on detergents:

irrelevant

Regulation (EC) No. 850/2004 [POP regulation]:
irrelevant

Regulation (EU) No. 649/2012 concerning the import and export of hazardous chemicals:
irrelevant

Restriction on use in accordance with REACH Annex XVII No.:
irrelevant

National regulations

National regulations must also be observed.

Instructions on employment restriction:
No information is available.

Major Accidents Ordinance
Not subject to the German Major Accidents Ordinance.

Solvent Ordinance (31st Federal Immission Protection Ordinance [BlmSchV]):
irrelevant

Storage class
10-13 Other flammable and non-flammable substances.

Water hazard class (WHC)
1 slightly hazardous to water (WHC 1)

Technical Instructions on Air Quality Control (TA-Luft)
Not subject to the Technical Instructions on Air Quality Control.

Other regulations, restrictions and prohibition ordinances
None

15.2. Chemical safety assessment

A chemical safety assessment was carried out for this preparation.

Chemical safety assessments were not carried out for substances in this mixture.

16. Other information

Text of H and P phrases (number and full text)

H phrases	Text
H317	May cause an allergic skin reaction.
H361	Suspected of damaging fertility or the unborn child.
H411	Toxic to aquatic life with long lasting effects.
H413	May be harmful to aquatic life with long lasting effects
P phrases	Text
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash contaminated skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P302+P352	IF ON SKIN: Wash with plenty of water.

P305+P351+P338	IF IN EYES Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/containers in accordance with local regulations.

Training tips

None

Recommended restriction(s) on use:

No special measures are required.

Data sources:

REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006.

Further information:

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