

  
**opti**print  


# 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

**1.2 Manufacturer:** dentona AG  
Otto-Hahn-Str. 27  
44227 Dortmund  
Tel.: 0049 231 5556 0  
Fax: 0049 231 5556  
30  
E-mail:  
info@dentona.de  
Internet:  
[www.dentona.de](http://www.dentona.de)

**1.4 Emergency number:** Germany: +49 30 30686700  
Austria: +43 1 406 43 43, +43 1 406 68 98  
Belgium: +32 070 245 245  
Bulgaria: +359 2 9154 409  
Croatia: +385 1 2348 342  
Cyprus: +357 22 408 636, +357 22 408 669  
Czech Republic: +420 224 919 293  
Denmark: +45 82 12 12 1 2  
Estonia: +372 16662  
Finland: +358 0800 147 111, +358 9 471 977  
France: +33 (0)1 45 42 59 59, +33 (0)1 45 42 59 59  
Greece: +30 2107793777  
Hungary: +36 (80) 201-199  
Iceland: +354 543 2222, +354 543 1000  
Ireland: +353 1 809 2166 (8-22h, 7/7)  
Italy: +3902-66101029, +3906 68593726  
Latvia: +371 67042473  
Liechtenstein: +423 236 64 00  
Lithuania: +370 8 5 236 20 52  
Luxembourg: +352 8002-5500  
Netherlands: +31 30 274 88 88  
Norway: +47 22 59 13 00  
Poland: +48 22 619 66 54  
Portugal: +351 808 250 143  
Romania: +40 21318 3606  
Slovakia: +421 2 54 77 4 166  
Slovenia: +386 41 650 500  
Spain: +34 915620420, +34 917689800  
Sweden: 08-331231 (Måndag-Fredag; 9.00-17.00, 112 24h)  
UK: 0844 892 0111 (UK only, Monday to Friday, 08.00-18.00)

## 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

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## 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

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## 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.

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## 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.

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## 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.

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## 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.

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## 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 <sup>3</sup>
Solubility	Insoluble in water	
Soluble in most organic solvents		
Viscosity	Approx. 700-1200	Pa s
pH	6-8	

### 9.2 Other information

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## 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

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## 11. Toxicological information

### 11.1 Information about toxicological effects

#### Difunktionale Methacrylate (at 100%)

Acute toxicity – oral LD <sub>50</sub>	> 2000 mg/kg, oral, rat
Acute toxicity – dermal LD <sub>50</sub>	> 2000 mg/kg, dermal, rat
Acute toxicity – inhalative LC <sub>50</sub>	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 <sub>50</sub>	540 mg/kg, oral, rat
Acute toxicity – dermal LD <sub>50</sub>	>2000 mg/kg, dermal, rabbit
Acute toxicity – inhalative LC <sub>50</sub>	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 <sub>50</sub>	No information available
Acute toxicity – dermal LD <sub>50</sub>	>2000 mg/kg, dermal, rat
Acute toxicity – inhalative LC <sub>50</sub>	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 <sub>50</sub> , 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 <sub>50</sub> , 48 hours: 13 mg/l, Daphnia magna
Acute toxicity - aquatic plants	NOEC, 96 hours: 0.31 mg/l, Desmodesmus subspicatus
Acute toxicity - microorganisms	EC <sub>50</sub> , 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
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No information available
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### 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

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### 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

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### 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.

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#### 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:

REJECTION OF LIABILITY We have obtained the information in this data sheet from sources that we consider reliable. The accuracy of expressed or implied information cannot be guaranteed. The conditions or methods for handling, storage, use or disposal of the product are beyond our control and possibly also our knowledge. For these and other reasons, we accept no responsibility and expressly reject liability for any losses, damage or costs that may arise from handling, storage, use or disposal of the product or that may be associated therewith in any way. This Safety Data Sheet was created for this product and may only be used for this product. If the product is used as a component of another product, the information indicated in the data sheet may not apply.

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*This information is based on our current knowledge and should only describe the product with regard to health, safety and environmental conditions. It must therefore not be construed as a guarantee for any specific property of the product.*