



optiprint



gingiva

3D printing resin for additive manufacturing of gingiva masks

Safety Data Sheet

Created on: 29.11.2021

Valid from: 29.11.2021

Signal word: hazard

1. Description of the substance or mixture and the company

1.1. Product identifier: Additive resin

1.2 Application: 3D printing resin for additive manufacturing of gingiva masks (385 nm / 405 nm).

1.3 Manufacturer: dentona AG
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2. Potential hazards

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

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	May irritate the airways
H360D	May cause harm to the unborn child.
H412	Toxic to aquatic life with long lasting effects

Safety Tips:

P261	Avoid inhalation of dust / smoke / gas / mist / vapor / aerosol
P262	Do not get in eyes, on skin, or on clothing.
P273	Avoid release to the environment
P280	Wear protective gloves / protective clothing
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.
P313	Get medical advice / attention.
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
Aliphatic urethane methacrylate	< 40	Company Secret	-	-
Tetrahydrofurfuryl Methacrylate	< 35	Company Secret	H317 H360D	Skin Sens 1 Repr. 1B
Difunktionale Methacrylate	< 25	Company Secret	H413	Aquatic Chronic 4
Phosphine oxide	< 2	Company Secret	H317 H361 H411	Skin Sens 1 Repr 2 Aquatic chronic 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	Various gingiva colors	
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

Molecular weight 496

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

Aliphatic urethane methacrylate (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	not irritating
Severe eye damage/irritation	not irritating
Respiratory tract sensitization	No sensitizing irritant effects known
Skin sensitization	No sensitizing irritant effects known
Germ cell mutagenicity / genotoxicity - in vitro	Gen-Mutation: negativ.
Carcinogenicity	NOAEL 1.5 mg/kg, dermal, mouse
Reproductive toxicity - fertility	Embryotoxizität: - NOAEL: 75 mg/kg KG/day, oral, Krabbit
Reproductive toxicity - Development	NOAEL 25 mg/kg KG/day, oral, Rrat
Acute toxicity – oral LD ₅₀	540 mg/kg, oral, rat
Tetrahydrofurfuryl Methacrylat (at 100%)	
Acute toxicity – oral LD ₅₀	3945 mg/kg, oral, rat
Acute toxicity – dermal LD ₅₀	No information available
Acute toxicity – inhalative LC ₅₀	No information available
Caustic/irritant effect on the skin	not irritating
Severe eye damage/irritation	not irritating
Respiratory tract sensitization	
Skin sensitization	sensitizes
Germ cell mutagenicity / genotoxicity - in vitro	Gen-Mutation: negativ.
Carcinogenicity	No information available
Reproductive toxicity - fertility	No information available
Reproductive toxicity - Development	Screening –NOAEL 300 mg/kg KG/day, oral, rat
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	not irritating
Severe eye damage/irritation	not irritating
Respiratory tract sensitization	No information available
Skin sensitization	Nicht sensibilisierend
Germ cell mutagenicity / genotoxicity - in vitro	Gen-Mutation: Negativ.
Carcinogenicity	No information available
Reproductive toxicity - fertility	NOAEL 1000 mg/kg KG/Tag, Oral, Ratte F1
Reproductive toxicity - Development	STOT - repeated exposure NOAEL 300 mg/kg KG/Tag, 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

Aliphatic urethane methacrylate (at 100%)

Acute toxicity - fish	LC ₅₀ , 96 hours: 3,2 mg/l, fish
Acute toxicity - Aquatic invertebrates	EC ₅₀ , 48 hours: 13 mg/l, Daphnia magna
Acute toxicity - Aquatic plants	NOEC, 96 hours: 0.31 mg/l, Desmodemus subspicatus
Acute toxicity - Microorganisms	EC ₅₀ , 3 hours: 100 mg/l, activated sludge

Tetrahydrofurfuryl Methacrylate (at 100%)

Acute toxicity - fish	LC ₅₀ , 96 hours: 34,7 mg/l, Pimephales promelas (Dickkopf-Elritze)
Acute toxicity - Aquatic invertebrates	EC ₁₀ , 21 Tage: 38,8 mg/l, Daphnia magna
Acute toxicity - Aquatic plants	EC ₅₀ , 72 hours: >100 mg/l, Desmodemus subspicatus
Acute toxicity - Microorganisms	Keine Informationen verfügbar

Difunktionale Methacrylate (at 100%)

Acute toxicity - fish	LL50, 96 Stunden: 100 mg/l, Brachydanio rerio (Zebrafisch)
Acute toxicity - Aquatic invertebrates	EL ₅₀ , 48 Stunden: > 100 mg/l, Daphnia magna
Acute toxicity - Aquatic plants	EL ₅₀ , 72 Stunden: > 100 mg/l, Pseudokirchneriella subcapitata
Acute toxicity - Microorganisms	NOEC, 28 Tage: 14.3 mg/l, Belebtschlamm

Phosphine oxide (at 100%)

Acute toxicity - fish	No information available
Acute toxicity - Aquatic invertebrates	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

Aliphatic urethane methacrylate (at100%)

Partition coefficient	log Kow: 1.69
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Tetrahydrofurfuryl Methacrylate (at 100%)

Bioaccumulation potential	No information available
Partition coefficient	log Kow: 1.76

Difunktionale Methacrylate (at 100%)

Partition coefficient	Log Kow: 5.30-5.62
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Phosphine oxide (at100%)

Partition coefficient	No information available
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12.4 Mobility on the ground

Aliphatic urethane methacrylate (bei 100%)

Adsorption / desorption coefficient	No information available
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Tetrahydrofurfuryl Methacrylate (bei 100%)

Adsorption / desorption coefficient	Calculation - Koc: 25.12 @ 20°C
Henry-Konstante	0.022 Pa m ³ /mol @ 25°C

Difunktionale Methacrylate (bei 100%)

Adsorption / desorption coefficient	- Log Koc: 3.69~3.88 @ 20°C
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Phosphine oxide (bei 100%)

Partition coefficient

No information available

12.5 Results of PBT and vPvB assessment

Aliphatic urethane methacrylate (at 100%)

According to the currently valid EU classification criteria, this substance is not classified as PBT or vPvB.

Tetrahydrofurfuryl Methacrylate (a 100%)

According to the currently valid EU classification criteria, this substance is not classified as PBT or vPvB.

Difunktionale Methacrylate (at 100%)

According to the currently valid EU classification criteria, this substance is not classified as PBT or vPvB.

Phosphine oxide (at100%)

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. 1907/2006 of the European Parliament and of the Council of December 18, 2006 on the registration, evaluation, approval and restriction of chemical substances (REACH) as amended.

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 [BImSchV]):

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
H412/413	May be harmful to aquatic organisms with long-term effects.
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H335	May irritate the airways
H360D	May cause harm to the unborn child
H400	Very toxic to aquatic organisms
H410	Very toxic to aquatic life with long lasting effects. IF ON SKIN: Wash with plenty of water.
P phrases	
P273	Avoid release to the environment.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove any existing contact lenses if possible. Continue rinsing.

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.

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.