

ENLIGHTEN MATERIALS

DD guide

3D printing materials

SAFETY DATA SHEET

2022/08/31

Version 2.2

Hazard Pictogram



Signal word: Warning

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product name: DD guide surgical guide 3D photoreactive resin

Synonym: Enlighten Materials surgical guide resin

Intended applications: Monomers based on acrylates or methacrylates for manufacturing of 3D-printed surgical guides using DLP and SLA 3D printers with 405nm light source.

Company: Enlighten Materials Co., Ltd. 8F, No 138, Sec 2, Jinshan South Road, Taipei, Taiwan

Emergency phone number: +886-988-661-609

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Color: transparent

Physical state: liquid

Odor: light acrylate

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Skin irritation (Category 2), H315

Eye irritation (Category 2), H319

Skin sensitization (Category 1), H317

Specific target organ toxicity – single exposure (Category 3), Respiratory system, H335

GHS/CLP LABELING

Hazard Pictogram



Signal word: Warning

HAZARD STATEMENTS

H315	Causes skin irritation.
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H413	May cause long lasting harmful effects to aquatic life

PRECAUTIONARY STATEMENTS

Prevention:

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workspace.
P280	Wear eye protection/ face protection.
P280	Wear protective gloves.

Response:

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P304 + P340 + P312

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332 + P313

If SKIN IRRITATION OCCURS: Get medical advice/attention.

P337 + P313

If EYE IRRITATION OCCURS: Get medical advice/attention.

P362

Take off contaminated clothing and wash before reuse.

P403 + P233

Store in a well-ventilated place. Keep container tightly closed.

P405

Store locked up.

P501

Dispose of contents/ container to an approved waste disposal plant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Monomers based on acrylates or methacrylates with low levels of stabilizer and pigments for manufacturing of 3D-printed surgical guides using DLP and SLA 3D printers.

Hazardous components	Hazard statement	CAS no	Appr. % w/w
A. Aromatic methacrylic oligomer	Eye Irrit. 2; H319 Skin Irrit. 2; H315 Skin Sens. 1; H317 STOT SE 3; H335	Proprietary	<80 %
B. Aliphatic methacrylic oligomer	Eye Irrit. 2; H319 Skin Irrit. 2; H315 Skin Sens. 1; H317 STOT SE 3; H335	Proprietary	<30 %
C. phosphine oxide	Aquatic Chronic 4; H413 Skin Sens. 1; H317	Proprietary	<5%

SECTION 4: FIRST AID MEASURES

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Remove the contaminated clothing and rinse the contaminated area with plenty of water. Consult a physician.

In case of eye contact: Hold eyelids apart to ensure flushing thoroughly with plenty of water for at least 20 minutes and consult a physician.

If swallowed: Never give anything by mouth to a victim without conscious or convulsing. Rinse mouth with water. Consult a physician.

SECTION 5: FIREFIGHTING MEASURES

Ignition Temperature: No data

Low explosion limit: No data

Extinguishing media: Use dry chemical or carbon dioxide for small fires, aqueous foam or water spray for large fires.

Special hazards arising from the substance or mixture: Carbon oxides

Advice for firefighters: Wear full protection clothing or self-contained breathing apparatus for firefighting if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Wear adequate personal protective equipment. Avoid breathing vapours. Ensure adequate ventilation. Evacuate personnel to safe areas in case of any emergency situation. See section 8

for personal protection.

Environmental precautions: Do not let the resin enter drains, sewers or water supplies.

Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes and prolonged contact with skins. Wash hands before eating, drinking, and any actions that may cause contact of use's hands with skin of other body areas. When the product was in use, a well-ventilated area is necessary.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a cool, dry and well-ventilated place.

Storage temperature: Recommended storage temperature 10 – 25 °C Storage class. Storage temperature above 25 °C should be avoided.

Expired date: Product expired date can be found on the container label. Products used after the expiry date can result in poor formation of 3D models.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS

Components	TWA 8hr (mg/m ³)	TWA 8hr (ppm)
A. Methacrylic oligomer	Not listed	Not listed
B. phosphine oxide	1.0(Skin)	No vapour
C. Colorants and pigments	Not listed	Not listed

EXPOSURE CONTROLS

Eye/face protection: Safety goggles with side-shields to prevent the splash of the product from entering eyes or contacting with face.

Skin and body protection: Handle with gloves and wear lab coat, trousers or even aprons to prevent skin from contacting resin.

Respiratory protection: In a well-ventilated working environment, respirators are generally not necessary. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU) when higher level protection is needed.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Properties	Value	Unit
Appearance	Transparent with very little yellow color	
Odor	Acrylate-like smell	
Specific Gravity	1.16	g/cm ³
Boiling point	>100	°C
Melting point	n/a	°C
Flash point	n/a	°C
Flammable limits (lower)	n/a	%v/v
Auto ignition temperature	n/a	°C
Explosive properties	n/a	
Oxidizing properties	n/a	
Lower exposure limits	n/a	
Upper exposure limits	n/a	
pH	n/a	
Viscosity	720	mPa.s
Solvent solubility	Good solubility with most organic solvents	

Water solubility	Slight soluble	
------------------	----------------	--

SECTION 10: STABILITY AND REACTIVITY

Conditions to avoid: This is a stabilized product. Very high temperature (>100°C) can result in uncontrolled polymerization which cause rapid heat buildup and result in rupture of the material container.

Incompatible materials : Polymerization initiators, peroxides, oxidizing agents, alcohol and strong bases

Hazardous decomposition products: Oxides of carbon and various hydrocarbon fragments when the material is burned.

SECTION 11: TOXICOLOGICAL INFORMATION

Properties	
Acute Oral Toxicity (rat)	No data available
Acute Dermal Toxicity (rat)	No data available
Inhalation	No data available
Dermal	No data available
Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available
Respiratory or skin sensitization	No data available
Germ cell mutagenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity – single exposure	No data available
Specific target organ toxicity – repeated exposure	No data available
Inhalation	May cause respiratory irritation
Delayed and immediate effects as well as chronic effects from short and long-term exposure	Inhalation of vapours may lead to headache, drowsiness and dizziness.

SECTION 12: ECOLOGICAL INFORMATION

Properties	
Toxicity	No data available
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Results of PBT and vPvB assessment	No data available
Specific target organ toxicity – repeated exposure	No data available
Inhalation	May cause respiratory irritation
Delayed and immediate effects as well as chronic effects from short and long-term exposure	Inhalation of vapours may lead to headache, drowsiness and dizziness.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods: Dispose the product following to governmental policy. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product. Expose the opened empty container to light as long as possible, then dispose.

SECTION 14: TRANSPORT INFORMATION

Transportation ADR/RID/AND: This product is not subject to ADR/RID/AND regulations.

Transport IMDG (International Maritime Dangerous Goods Code): This product is not subject to IMDG regulations.

Transport ICAO-Ti/IATA (International Air Transportation Association): This product is not subject to ICAO-Ti/IATA regulations.

SECTION 15: REGULATORY INFORMATION



EC classification: irritant, sensitizing and harmful

Hazard symbol: Xi: irritating

Health Phrases

H315	Causes skin irritation.
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H413	May cause long lasting harmful effects to aquatic life

High atmospheric concentrations may lead to irritation of the respiratory tract and anesthetic effects. Repeated and/or prolonged contact may cause dermatitis

SECTION 16: OTHER INFORMATION

The information is based on the present state of our knowledge and experience, and it is applicable to the product with regard to appropriate safety precautions. It does not, however, constitute a guarantee for properties of the product and shall not establish a legally valid contractual relationship. Enlighten Materials Co., Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product. Copyright 2018 Enlighten Materials Co., Ltd.