

# ENLIGHTEN MATERIALS

## Dental MODEL

(3D Printing Resin for Dental Model)

SAFETY DATA SHEET

2019/04/06

Version 1.1

Hazard Pictogram



Signal word: Warning

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**Product name:** DENTAL MODEL 3D printing photoreactive resin

**Synonym:** Enlighten Materials dental model resin

**Intended applications:** Monomers based on acrylates or methacrylates for manufacturing of 3D-printed dental models using DLP, SLA or LCD 3D printers.

**Company:** Enlighten Materials Co., Ltd. 8F, No138, Jinshan South Road, Taipei, Taiwan

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

## SECTION 2: HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

**Color:** brown, gray

**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	<b>IF ON SKIN:</b> Wash with plenty of soap and water.
P310	<b>IF SWALLOWED:</b> Immediately call a POISON CENTER or doctor/physician.
P304 + P340 + P312	<b>IF INHALED:</b> 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	<b>IF IN EYES:</b> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	<b>If SKIN IRRITATION OCCURS:</b> Get medical advice/ attention.
P337 + P313	<b>If EYE IRRITATION OCCURS:</b> 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 dental models using DLP, SLA or LED 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 %
B. 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 <sup>3</sup> )	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 <sup>3</sup>
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. Polymerization, however, may occur when the product is expired or storage temperature exceed 25°C. Very high temperature 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 2019 Enlighten Materials Co., Ltd.