Material Safety Data Sheet(MSDS)

3D eResin-PMMA Like Resin

Section 1. Product and Company Identification

Product identifier	:	Photopolymer Resin
Chemical name	:	Not applicable
Other means of identifi cation	:	Not available
Product type	:	Liquid
Recommended use	:	For use with 3D Printer, NOT for human use
Company	:	Shenzhen Esun Industrial Co.,Ltd.
Website	:	www.brightcn.net
ADD	:	Wuhan University Building A403-I,No.6 Yuexing2 Road, Nanshan District, Shenzhen, China
Tel	:	(086)-0755-26031975 (086)-0755-26031982
E-mail	:	lj@brightcn.net

Section 2. Hazard(s) Identification

Classification of the substance or mixture：

ACUTE TOXICITY (oral) - Category 5 ACUTE TOXICITY (dermal) - Category 5
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
ACUTE AQUATIC HAZARD - Category 2 LONG-TERM AQUATIC HAZARD - Category 2

GHS label elements：

Sigal word : Warning

Hazard statements : H303 + H313 - May be harmful if swallowed or in contact with skin.
H319 - Causes serious eye irritation. H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction. H335 - May cause respiratory irritation.
H411 - Toxic to aquatic life with long lasting effects.Precautionary statements

Section 2. Hazard(s) Identification

Prevention : P280 - Wear protective gloves: 4 - 8 hours (breakthrough time): Nitril rubber (0.70 mm). Wear eye or face protection.
P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment.
P261 - Avoid breathing vapour.
P264 - Wash hands thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.

Response : P391 - Collect spillage.
P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. P301 + P312 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell.
P302 + P352 + P312 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Take off contaminated clothing and wash it before reuse.

P333 + P313 - If skin irritation or rash occurs: Get medical attention.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 - If eye irritation persists: Get medical attention.

Storage :P405 - Store locked up.

Disposal :P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification：None known.

Section 3. Composition/Information on Ingredients

Substance/mixture：mixture

Chemical concentration：100

Chemical Name	CAS No.	% by Weight
(1-methyl-1,2-ethanediyl)bis[oxy(methyl-2,1-ethanediyl)] diacrylate	42978-66-5	0-50%
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2-(chloromethyl) oxirane, 2-propenoate	55818-57-0	0-20%
hexamethylene diacrylate	13048-33-4	0-25%
trimethylolpropane triacrylate	15625-89-5	0-50%
2-Hydroxyethyl acrylate	818-61-1	<0.5%
additive		<5%

As far as the supplier is aware of the concentration， the health or safety aspects of this material have not been fully evaluated.

Section 4. First-Aid Measures

Description of necessary first aid measures

Eye contact：

If in eyes: rinse cautiously with water for a few minutes and always open the

eyes and face.If you wear contact lenses, remove the contact lens and continue to rinse for 10 minutes.get medical attention.

Inhalation：Remove from site to air-conditioned area.If breathing is difficult, give oxygen and getmedical attention immediately.

Section 4. First-Aid Measures

Skin contact：

Remove contaminated clothing and rinse thoroughly with medical alcohol, soap and water.

Ingestion：

Drink enough warm water to induce vomiting.get doctor attention.

Indication of immediate medical attention and special treatment needed ,if necessary

Treat for symptoms.If large amounts of poison have been ingested or inhaled, contact a toxicology expert immediately.

Section 5. Fire-Fighting Measures

Dangerous characteristic：

If open fire, high heat combustible, and release toxic gases.When exposed to light, it reacts violently and gives off intense heat, turning the liquid into a solid.

Hazardous thermal decomposition product ：

Carbon monoxide and carbon dioxide.

suitable：

Water mist, anti-ethanol foam, dry powder or carbon dioxide fire extinguishing.

Not suitable：None known.

Remarks：

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus(SCBA) with a full face-piece operated in positive pressure mode.Move the container from the fire to an open area if possible.Spray water to keep the fire container cool until the endof the fire.Containers in a fire must be immediately discolored oraudible from a safety relief device.

Section 6. Accidental Release Measures

For emergency responders：

Please use chemical protective equipment.Avoid inhaling steam.Ensure adequate ventilation.Evacuate people to safe areas.Do not touch or walk past leaking material.When ventilation is insufficient, wear a respirator.

Section 6. Accidental Release Measures

Environmental precautions：

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and water bodies.Inform the relevant authorities if the product has causes environmental pollution.

Methods and materials for containment and cleaning up：

It is absorbed with inert adsorbent and treated as hazardous waste.Place in a suitable closed container for disposal

Section 7. Handling and Storage

Precuations for safe handing

Protective measures：

Closed operation.Operators must be specially trained and strictly abide by the operating procedures. It is suggested that operators should wear self-inhalation filter respirator, chemical safety glasses, protective clothing and rubber gloves.

Advice on genenal occupational hygiene ：

Keep away from fire and heat. Smoking is strictly prohibited in the workplace. Use explosion-proof ventilation systems and equipment.Do not weld, cut, etc before removing liquid.Avoid contact with oxidants.The container and the transmission device need to be grounded to prevent static electricity.The filling speed should be controlled, and there is a grounding device to prevent the accumulation of static electricity.Equipped with the corresponding varieties and quantities of fire equipment and leakage emergency treatment equipment.Product residue (liquid) remains in empty containers and may be dangerous.

Conditions for safe storage：

Store in a cool, dry, ventilated place in a dark, airtight container.Prevent direct sunlight, and oxidant, acid, alkali and other separate storage, do not mix storage.The opened container must be re-sealed and held upright to prevent leakage.The storage area shall be provided with emergency equipment and suitable materials to deal with leakage.

Section 7. Handling and Storage

Advice on storage temperature：18-35℃

Section 8. Exposure Controls / Personal Protection

China MAC(mg/m3)：None known

TLV-STEL(mg/m3)：None known

Allowable concentration of occupational exposure：None known

Engineering controls：The production process is closed.Ensure good natural ventilation and heat dissipation.

Respiratory protection：Adivice in air breathing apparatus.

Eye protection：Wear chemical safety glasses.

Body protection ：Wear protective clothing.

Hand protection ：Wear rubber gloves.

Other protection ：After work, shower and change.Pay attention to personal hygiene.

Section 9. Physical and Chemical Properties

Physical state： Liquid

Colour：Translucent

Odor： Slight

Melting point：Not available

Boiling point ：Not available

Flash point： > 150℃(Close-cup, estimate)

Evaporation rate ：Not available

Flammability：Not available

Vapour pressure：Not available

Vapour density：Not available

Decomposition temperature：Not available

viscosity：Not available

Relative density（g/ml，水=1）：Not available

Solubility：Not available

Section 10. Stability and Reactivity

Chemical stability：The product is stable

Hazardous decomposition products：

Under nomal conditons of storage and use,hazardous decomposition products should not be produced.

Conditions to avoid：Oxidizing acid, alkali and water;Strong illuminant

Possibility of hazardous reactions：

light may cause spontaneous violent chemical reaction.give off strong heat and irritating gas, liquid into solid.

Hazardous decomposition products：Carbon monoxide and carbon dioxide

Selection 11.Toxicological information

Acute toxicity：None known

Major irritant effects

Skin：Irritating to skin and mucous membranes

Eye：Stimulate an eye

Sensitisation ：None known significant effects or critical hazards

Potential chronic health effects

Carcinogenicity：None known significant effects or critical hazards

Reproductive toxicity：None known significant effects or critical hazards

Consultations for sex：None known significant effects or critical hazards

Respiratory risk：None known significant effects or critical hazards

Symptoms associated with physical, chemical, and toxicological properties

Eye contact：Pain or irritation, tears, redness

The suction：No specific data

Skin contact：Excitement, redness

eat：No specific data

Section 12: Ecological Information

Water hazard catagory 1：

Do not expose undiluted or large products to groundwater, waterways or sewage systems.Do not release materials into the environment without permission.

Mobility in soil：Not available.

Other adverse effects ： None known significant effects or critical hazards.

Section 13. Disposal Considerations

Disposal methods ：

refer to relevant state, local and national regulations.Deliver the product to the hazardous waste handler.Must be dealt with in accordance with government regulations.

Uncleaned packaging：

The packaging should be discarded in accordance with official regulations.

Selection 14.Transport Information

	UN	IMDG	IATA
UN No.	Not regulated	Not regulated	Not regulated
UN proper shipping name	-	-	-
Hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No	No	No
Marine Pollutant	No	No	No

Land transport(ADG):Not regulated for transport of dangerous goods.

Air transport(ICAO-IATA/DGR):Not regulated for transport of dangerous goods.

Sea transport(IMDG-Code/GGVSee):Not regulated for transport of dangerous goods. Transport in bulk according to Annex II of MARPOL and the IBC code.
Transport within user's premises:always transport in closed containers that are upright and secure.Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory Information

Safety and environmental regulations for this product: no known national or regional regulation may regulate this product.

SARA302： no chemical in this material is subject to the SARA Title III section 302 reporting requirements.Subject to section 3, SARA, and section 40, section 372, part 372, of the superfund amendment and reauthorization act of 1986, this product does not contain chemicals that meet the reporting requirements under section 313.
California proposition 65： this product does not contain chemicals known to cause cancer in California.

Regulations on the safe administration of hazardous chemicals (promulgated by the state council on March 15, 2002), regulations on the safe use of chemicals in the workplace ([1996] issued by the ministry of labor no. 423) and other regulations have made corresponding provisions on the safe use, production, storage, transportation, loading and unloading of hazardous chemicals.

Section 16. Other Information

This information can only be used as a supplement to other information.Please use and protect the health and safety of your employees.This information is provided without warranty, and the user fails to use the product in accordance with the material safety data sheet, or USES it in connection with other products and operations at his own risk.
Filling department: r&d department
ADR：Accord européen sur le transport des marchandises dangereuses par RouteIMDG： Route for the international matirisla of dangerous goods by sea

DOT：U.S. department of transportation

IATA： International air transport association

EINECS： European Inventory of Existing Chemical Substance

CAS： Chinese Academy of Sciences

VbF：Verordnung über brennbare Flüssigkeiten, Österreich

LC50： Lethal concentration, 50% lethal dose, 50%

vPvB： very Persistent and very Bioaccumulative

ACGIH：American Conference of Governmental Industrial Hygienists (USA)

OSHA： Occupational safety and health administration (USA)

NTP： National Toxicology Program (USA)

IARC： International Agency for Research on Cancer

EPA： Environmental Protection Agency (USA)