

SAFETY DATA SHEET

Phrozen Dental Ortho Model Resin

Prepared according to US OSHA HCS 29 CFR 1910.1200.

Issued Date : 2021/8/04

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SECTION 1: IDENTIFICATION

Product identifier

Product name: Dental Ortho Model Resin

Recommended use of the product and restriction on use

Relevant identified uses: For use in Phrozen 3D-printers

Uses advised against: Applications that generate aerosol, mist or vapor

Manufacturer or supplier details

Manufacturer: Phrozen Tech Co., Ltd.

287 Niupu Rd, Xiangshan Dist, Hsinchu City 30091, TAIWAN

Emergency telephone number: +886-3540-0076

SECTION 2: HAZARD IDENTIFICATION

Label elements:

Hazard pictograms:



Signal word: WARNING

Risk phrases:

R22 - May be harmful if swallowed

R36/37/38 - Irritation to eyes, respiratory system and skin

R43 - May cause sensitization by skin contact

Safety phrases:

S7 - Keep container tightly closed

S9 - Keep container in a well-ventilated place

S20 - When using do not eat or drink

S24/25 - Avoid contact with skin and eyes

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 - After contact with skin, wash immediately with plenty of water

S29 - Do not empty into drains

S37/39 - Wear suitable gloves and eye/face protection



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Hazard statements:

- H303 - May be harmful if swallowed
- H315 - Cause skin irritation
- H317 - May cause an allergic skin reaction
- H318 - Cause serious eye damage

Precautionary statements:

- P202 - Do not handle until safety precautions have been taken
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources
- P233 - Keep container tightly closed
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P261 - Avoid breathing dust, fume, gas, mist, vapors, spray
- P262 - Do not get in eyes, on skin or on clothing
- P264 - Wash thoroughly after handling
- P271 - Use only outdoors or in a well-ventilated area. Hazardous polymerization may occur upon depletion of inhibitors.
- P272 - Contaminated work clothing should not be allowed out of the workplace.
- P273 - Avoid release to the environment.
- P280 - Wear protective gloves/ eye protection/face protection.

Response:

- P301+P317 - IF SWALLOWED: Get medical help.
- P302+P352 - IF ON SKIN: Wash with plenty of water.
- P305+P354+P338 - IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P319 - Get medical help if you feel unwell.
- P332+P317 - If skin irritation occurs: Get medical help.
- P333+P317 - If skin irritation or rash occurs: Get medical help.
- P362+P364 - Take off contaminated clothing and wash it before reuse.

Hazards not otherwise classified:

None



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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS number	Weight %
Urethane acrylate oligomer	Proprietary	Proprietary
Acryloyl morpholine	Proprietary	Proprietary
Tris(2-Hydroxy Ethyl) Isocyanurate Triacrylate	Proprietary	Proprietary
Diphenyl(2,4,6-trimethyl benzoyl) phosphine oxide	75980-60-8	<2%
Silica	7631-86-9	<2%
Carbon black	1333-86-4	<1%

SECTION 4: FIRST AID MEASURES

Contact with skin:

Immediately take off all contaminated clothing. Wash skin immediately with mild soap/water for at least 15 minutes. If resin is not completely removed, use a waterless cleaner first. Seek medical advice if irritation persists.

Contact with eyes:

Wash eyes under the eyelid immediately with water for 20-40 minutes. See medical advice if irritation, pain, tears or redness persists.

Swallowing:

DO NOT INDUCE VOMITING. If vomiting occurs naturally, keep airways clear. Immediately obtain medical attention.

Inhalation:

If overcome by exposure, ventilate the premises. Remove victim from contaminated area to well ventilated areas or outdoors. If needed, provide oxygen or artificial respiration. Get immediate medical attention



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SECTION 5: FIRE-FIGHTING MEASURES

Recommended extinguishers:

CO₂, foam, chemical powders, sand or earth. Use water based extinguishing media with caution.

Extinguishers not to be used:

High volume water jet.

Risks arising from combustion:

Avoid inhaling the fumes. Incomplete combustion releases toxic gasses.

Advice for fire-fighters:

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Measures for personal safety:

Use masks, gloves and protective clothing.

Environmental measures:

Limit leakages with earth or sand. If the product has flown off into a water course, into the drainage system, or has contaminated the ground vegetation, notify the responsible authorities.

Cleaning methods:

Rapidly collect the product. To do so, wear a mask and protective clothing. When the product is in a liquid form, stop it from entering the drainage system. Recover the product for re-use if possible, or for elimination in compliance with waste disposal regulations in force. The product might, when appropriate, be absorbed by inert material.



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SECTION 7: HANDLING AND STORAGE

Handling precautions:

Avoid contact with and inhalation of vapors and/or dust. Do not eat or drink or smoke while working.

Incompatible materials:

Keep away from amines, strong bases, acids and strong oxidants.

Storage conditions:

Keep away from amines, strong bases, acids and strong oxidants. Storage temperature: between 15°C/59°F to 35°C/95°F Keep in a dry place, in the original containers tightly closed, avoid heat/ignition and light sources. Prevent contamination by foreign materials and water. For industrial use only, keep away from children.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Precautionary measures:

Provide adequate ventilation to the areas where the product is stored and/or handled.

Respiratory protection:

Required where ventilation/aspiration is insufficient or exposure is prolonged, or applications in which the product is sprayed or heated. Required in case of machinery or applications that release dust.

Protection for hands:

Use protective gloves. For an extended exposure of the product, wear nitrile/neoprene gloves. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The exact break through time can be obtained from the protective glove producer and this has to be observed. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.



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Eye protection:

Use safety goggles.

Protection for skin:

Use clothing that provides complete protection to the skin.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Apperance and color	Dark gray viscous liquid
Odor	Mild
pH	N/A
Melting point	N/A
Boiling point	> 250C/482F
Flash point	> 113C/235F
Explosive properties	N/A
Combustion related properties	N/A
Specific gravity	1.18 g/cm ³ at 25C/77F
Viscosity	180-270 cps
Solubility in water	Insoluble
Solubility in organic solvents	Soluble in organic solvents
Vapor pressure	N/A
Volatile Characteristics	Negligible
Electrostatic Discharge	Safe
Electric Conductivity	Dielectric



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SECTION 10: STABILITY AND REACTIVITY

Stability:

Stable when stored in original containers designed for use with light sensitive materials under 35C/95F in dark, cool places.

Conditions to avoid:

Storage > 38C/100F, exposure to light, loss of dissolved air, and contamination with incompatible materials.

Incompatible materials to avoid:

Polymerization initiators, including peroxides, strong oxidizing agents, alcohols, copper, copper alloys, carbon steel, iron, rust, and strong bases.

Hazardous decomposition product:

Hazardous decomposition products may include oxides of carbon, nitrogen and various hydrocarbon fragments.

Hazardous polymerization:

Hazardous polymerization may occur. Uncontrolled polymerization may cause rapid evolution of heat and increase in pressure that could result in violent rupture of sealed storage vessels or containers.

SECTION 11: TOXICOLOGICAL INFORMATION

Individual components of this product are not reported to produce mutagenic effects in humans. None of the components of this material are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Acute toxicity:

Product: May be harmful if swallowed.

Components: No data available.

Skin corrosion/irritation:

Product: Cause skin irritation

Component: No data available.



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Eye damage/irritation:

Product: Cause eye damage
Component: No data available.

Skin/Respiratory sensitization:

Product: May cause an allergic skin reaction
Component: No data available.

Germ cell mutagenicity:

Product: Not classified based on available information
Component: No data available.

Carcinogenicity:

Product: Not classified based on available information
Component: No data available.

Reproductive toxicity:

Product: Not classified based on available information
Component: No data available.

STOT - Single exposure:

Product: Not classified based on available information
Component: No data available.

STOT - Repeated exposure:

Product: Not classified based on available information
Component: No data available.

Aspiration toxicity:

Product: Not classified based on available information
Component: No data available.

SECTION 12: ECOLOGICAL INFORMATION

Keep product from waterways and watersheds. This substance is not readily biodegradable.
Dispose of in accordance with all applicable regulations.

Ecotoxicity:

Product: No data available
Component: No data available.



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Persistence and degradability:

Product: No data available

Component: All main components are biodegradable in water (100%). Not readily biodegradable

Bioaccumulative potential:

Product: No data available

Component: No data available.

Mobility in soil:

Product: No data available

Component: No data available.

Results of PBT and vPvB assessment:

The substances are not considered to be persistent, accumulative, and toxic (PBT).

The substances are not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods:

Dispose of in accordance with governmental regulations (community, national or regional). Contact a licensed professional waste disposal service to dispose of this mixture. As with all foreign substances, do not allow the substances to enter storm or sewer drainage systems. Avoid release into the environment.

Sewage disposal relevant information:

Do not empty into drains. Avoid release to the environment. Refer to special relevant and safety data sheets.

Contaminated Packaging:

Dispose of as unused product. Expose the open emptied container to light, then dispose.

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SECTION 14: TRANSPORT INFORMATION

Land transport USDOT	Not classified as dangerous goods under transport regulations.
Sea transport IMDG	Not classified as dangerous goods under transport regulations.
Air transport IATA/ICAO	Not classified as dangerous goods under transport regulations.
Further information	N/A
Other requirements	N/A

SECTION 15: REGULATORY INFORMATION

United States regulations:

TSCA inventory listing*:

Components	CAS number	Weight %	Status
Urethane acrylate oligomer	Proprietary	Proprietary	Listed
Acryloyl morpholine	Proprietary	Proprietary	Listed
Tris(2-Hydroxy Ethyl) Isocyanurate Triacrylate	Proprietary	Proprietary	Listed
Diphenyl(2,4,6-trimethyl benzoyl) phosphine oxide	75980-60-8	<2%	Listed
Silica	7631-86-9	<2%	Listed
Carbon black	1333-86-4	<1%	Listed

** All the components present in this product at concentrations equal to or greater than 0.1% are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.*

Significant New Use Rule (TSCA Sec.5):

Not listed.



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Export notification under TSCA Sec.12(b):

Not listed.

SARA Sec.302 extremely hazardous substances:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Sec 302.

SARA Sec.313 toxic chemicals:

Pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986, (SARA) and 40 CFR 372 Part 372, this product does not contain chemicals at levels greater or equal to 0.1wt% subject to the reporting requirements under Section 313.

CERCLA:

Not listed.

California Prop.65, Safe Drinking Water & Toxic Enforcement Act:

This product does not contain chemicals at levels greater or equal to 0.1wt% which are known to the state of California to cause birth defects or other reproductive harm.

European Union regulations:

EINECS listing:

Components	CAS number	Weight %	Status
Urethane acrylate oligomer	Proprietary	Proprietary	Listed
Acryloyl morpholine	Proprietary	Proprietary	Listed
Tris(2-Hydroxy Ethyl) Isocyanurate Triacrylate	Proprietary	Proprietary	Listed
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Carbon black	1333-86-4	<1%	Listed

REACH No.:

A registration number is not available for this substance as the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

ESIS dangerous chemicals:

Not listed.



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SECTION 16: OTHER INFORMATION

To the best of our knowledge the information contained herein is accurate. However, Phrozen Tech. Co. Ltd. makes no warranty, expressed or implied, regarding the accuracy of these results to be obtained from the use thereof. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. Phrozen Tech. Co. Ltd. assumes no responsibility for injury from the use of the product described herein.

END OF SAFETY DATASHEET