Material Safety Data Sheet

Phrozen Functional Resin: Beige Flex

SECTION 1 、Chemical Product and Company Identification

Product Name	**Phrozen Functional Resin: Beige Flex**
Synonyms	-
Chemical Name	Mixture of Acrylate, Photoinitiator, and Pigment
Type	Liquid
Application	**UV/Visible Light curable resin for 3D printing**
Manufactuers	普羅森科技股份有限公司 Phrozen Tech Co. Ltd. +8863-5302273 # 35 No.2, Ln. 496, Niupu S. Rd., Xiangshan Dist., Hsinchu City 300, Taiwan (R.O.C.) phrozen.dlp@gmail.com
Emergency Phone	+886916781577 Local police number

SECTION 2 、Hazard Identification

Classification of the substance or mixture：Acute Toxicity (Oral) Category 5 ; Skin corrosion/irritation Category 2 ; Serious eye damage/eye irritation Category 2A ; Skin sensitization Category 1

Label elements：—

Symbol:

Signal word: Warning

Hazard substance: Ethoxylated Bisphenol-A Diacrylate

Hazard statement: H315 Causes skin irritation

H317 May cause an allergic skin reaction

Precautionary: —

statements:

Prevention

P264 Wash thoroughly after handling.

P280 Wear protective gloves/eye protection/face protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty water

P321 Specific treatment (see First Aid Measures)
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
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 advice/attention.

Disposal
P501 Dispose of contents/container in accordance with local regulations.

Other hazards：Skin sensitization hazard, Heat generation when polymerization, carbon oxide generation when decomposition by heat.

SECTION 3 、Composition/Information on Ingredients

Mixtures：

Chemical property：

Substance Identity	CAS No.	Approx. Weight (%)
Polyetser Acrylate	61630-89-5	60%~70%
Ethoxylated Bisphenol-A Diacrylate	64401-02-1	20%~30%
Photoinitiator	162881-26-7	0%-5%

SECTION 4 、First Aid Measures

The first-aid measures for different exposure routes：

If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

：Immediately remove contaminated clothing. Wash skin thoroughly with mild soap/water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

：In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Obtain emergency medical attention.

If large quantity swallowed, give lukewarm water (pint) if victim completely conscious/alert. Do not induce vomiting/risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

The most important symptoms and hazardous effects：Slight skin irritation

：Wear C class protective equipment and first aid in safety area.

：Slight skin irritation, Symptoms may include localized redness or rash and swelling of the affected area, Symptoms may be delayed.

SECTION 5 、Fire Fighting Measures

Suitable fire extinguishing media：Water, foam, carbon dioxide or dry chemical.

Specific hazards may be encountered during fire-fighting： High temperatures, inhibitor depletion, accidental impurities, or exposure to radiation or oxidizers may cause spontaneous polymerizing reaction generating heat / pressure. Closed containers may rupture or explode during runaway polymerization.
Specific fire-fighting methods： Full protective equipment, including self contained breathing apparatus is needed to protect fire fighters from exposure.
Special equipment / instructions for the protection of firefighters： Chemical splash goggles and/or face shield, respiratory protection equipment, protective gloves, apron, boot.

SECTION 6 、Accidental Release Measures
：Wear proper protective equipment, avoid raw material contact and vapor inhalation.
：1. Extinguish all ignition sources and ventilate area. 2. Dispose/report per regulatory requirements.
Clean-up procedures：1. Avoid contact spilled or released material 2. Reduce spill or release in safety condition. 3. Soak up small spill with inert solids (such as vermiculite, clay) and sweep/shovel into vented disposal container. 4. Dike and recover large spill. Obtain emergency help by fire or emergency unit.

SECTION 7 、Safe Handling and Storage Measures
This product is inhibited to prevent uncontrolled polymerization. A polymerization can generate heat and pressure and may cause product container to rupture. Check inhibitor content often and add inhibitor to bulk liquid if needed.
：Maintain head space in storage containers to support oxygen requirements of the inhibitor(s). Do not blanket or mix with oxygen free gas, and prevent material from freezing (inhibitor can separate from product as a solid). Store drums above 10℃/50℉ and below 32℃/90℉. Bulk storage temperature range:15-27℃/59-80℉. Store drums away from heat sources, strong oxidizers, radiation and other initiators. Use product within six months of receipt for optimum results. If material freezes, heat and mix to redistribute the inhibitor. Product may also be heated to facilitate handling. Heat product container slowly to 40℃/104℉ for not more than 24 hours. Convection ovens or warm water bath (preferred due to more efficient heat transfer) are recommended for heating. Do not use drum heater. An air space, preferably an air bubble flow, should be provided for at all times during heating.

SECTION 8 、Exposure Controls Measures
1. Using no spark, grounding ventilation system, and separate from general ventilation system. 2. Exhaust waste gas to outdoor, and take applicable measure to protect environment. 3. Using local exhaust ventilation and closed processing system when mass production. 4. Complement exhaust air by ventilation system with supply plenty fresh

air.

Control parameters

Substance name	TWA	STEL	CEILING	BEIs
Polyetser Acrylate	—	—	—	—
Ethoxylated Bisphenol-A Diacrylate	—	—	—	—
Photoinitiator	—	—	—	—

Personal protective equipment：

：If this material is handled at elevated temperature or under mist forming conditions, NIOSH/MSHA approved respiratory protection equipment should be used.
Chemical-resistant gloves should be wore when handing this product.

：Chemical splash goggles and /or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor. Contact lenses should not be worn

：Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn. This equipment should be cleaned thoroughly after each use.

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

2. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities.
3. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9 、Physical and Chemical Properties

Appearance (physical state, colour, etc)：Liquid at 25℃	Odor：Low Odor
Odor threshold：—	Melting point/freezing point：—
pH value：AP 6.8 - 7.2	Boiling point/boiling range：—
Flammability (solid, gas)：—	Flash point： >110℃
Decomposition temperature：—	Test method：Closed cup
Autoignition temperature：—	Explosion limits：—
Vapor pressure：—	Vapor density：—
Density：1.13~1.18	Solubility：Water: Negligible
Partition coefficient of n-octanol/water：—	Evaporation rate：—

SECTION 10 、Chemical Stability and Reactivity Information

Chemical Stability：Stable on normal condition.

Possible hazardous reactions occurring under specific conditions：
Heat and pressure generation when polymerization and the result in closed container broken and cracked.

Conditions to be avoided：High temperatures, localized heat sources (i.e., drum or band heaters), oxidizing conditions, freezing conditions, direct sunlight, ultraviolet radiation, inert gas blanketing.

：Strong oxidizers, strong reducers, free radical initiators, inert

engers.
Hazardous decomposition products：Acrid smoke-fumes/carbon monoxide/carbon dioxide and perhaps other toxic vapors may be released during a fire involving this product.

SECTION 11 、Toxicological Information
Routes of exposure：Skin, inhalation, ingestion, eyes.
: ：No significant signs or symptoms indicative of any adverse health hazard are expected to occur at standard conditions due to the low volatility of this material. However, aerosols, or vapors which may be generated at elevated processing temperatures, may cause respiratory tract irritation. Symptoms of irritation may include coughing, mucous production and shortness of breath. Although no appropriate human or animal health effects data are known to exist, this material is expected to be a skin irritant. Symptoms of irritation may include redness or rash, swelling of the affected area and blistering. Repeated or prolonged skin contact may cause a more severe skin response such as ulcers and scarring. Symptoms of skin exposure may be delayed 24-48 hours. Although no appropriate human or animal health effects data is known to exist, this material may cause an allergic skin reaction (sensitization) in susceptible individuals upon repeated exposure. Although no appropriate human or animal health effects data are known to exist, this material is expected to cause eye irritation. May cause moderate irritation with symptoms including burning sensation, tearing, redness or swelling. Although no appropriate human or animal health effects data are known to exist, this material is expected to be a slight ingestion hazard.
Acute toxicity：—
Chronic toxicity or long term toxicity：—

SECTION 12 、Ecological Information
Ecological toxicity：—
Persistence and degradability：—
Bio-accumulative potential：—
Mobility in soil：—
Other adverse effects：—

SECTION 13 、Waste Disposal Measures
Methods of waste disposal： . Residues and spilled material may be hazardous waste due to potential for internal heat generator. Disposal must be in accordance with applicable federal, state, or local regulations. . The container for this product can present explosion or fire hazards, even when emptied. To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since the emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14 、Transport Information
Not dangerous good United nations number (UN No)：/ UN Proper shipping name：/ Transport hazard class(es)：/ Packing group number：— Marine pollutant：NO Specific transport measures and precautionary conditions：—

SECTION 15 、Regulatory Information
Applicable regulations：N/DA

SECTION 16 、Other Information
Reference documents
MSDS prepared by Organization name：Phrozen Tech Co. Ltd. Address/Telephone：No.2, Ln. 496, Niupu S. Rd., Xiangshan Dist., Hsinchu City 300, Taiwan (R.O.C.) +886916781577
Date：2018/11/13
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