

# SAFETY DATA SHEET

Aqua-Gray 8K

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## SECTION 1 : IDENTIFICATION

### 1.1 Product identifier

Product name Aqua-Gray 8K

### 1.2 Recommended use and restrictions on use

Recommended use For use in Phrozen 3D-printers

Restrictions on use Do not use in the situation that easily generate aerosol, steam.

### 1.3 Name, address and phone of manufacturer , importers or supplier

Manufacturer Phrozen Tech Co., Ltd.287 Niupu Rd, Xiangshan Dist,  
Hsinchu City 30091, TAIWAN( R.O.C )

Phone +886-3621-0505

### 1.4 Emergency phone / Fax +886-3621-0505 / +886-3539-6591

## SECTION 2 : HAZARD IDENTIFICATION

### 2.1 Hazard classification

Skin corrosion/irritation Category 2 , Serious eye damage/eye irritation Category 1 ,  
Skin sensitization Category 1 , Reproductive toxicity Category 1B,  
Specific target organ toxicity - repeated exposure Category 2,  
Hazardous to the aquatic environment - acute hazard Category 1,  
Hazardous to the aquatic environment - chronic hazard Category 3

### 2.2 Signal statement

Corrosion, Exclamation mark, Health hazard, Environment



### 2.3 Pictograms

### 2.4 Signal word Danger

### 2.5 Hazard statements

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

May cause damage to organs through prolonged or repeated exposure.

Very toxic to aquatic life with long lasting effects.

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### 2.6 Precautionary statements

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Obtain special instructions before use.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, If present and easy to do. Continue rinsing.

Immediately call a POISON CENTER/doctor.

Store locked up.

Dispose of contents/container to hazardous or special waste collection point.

### 2.7 Other hazard

None

## SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1. Substances

Not relevant (mixture)

### 3.2. Mixtures

Components	CAS number	Weight %	Classification acc. to GHS
Oxybis(methyl-2,1-ethanediyl) diacrylate	57472-68-1	30-50 %	Skin Corr.Irrit. 2 / H315 Eye Dam./Irrit. 1 / H318 Skin Sens. 1 / H317
4,4'-Isopropylidenediphenol, polymer with 1-chloro-2,3-epoxypropane, propane-1, 2-diol acrylate and succinic anhydride	68958-77-0	10 - 30 %	Acute Tox. 4 / H332 Skin Sens. 1B / H317 Aquatic Acute 1 / H400 Aquatic Chronic 4 / H413
4-(1-oxo-2-propenyl)-morpholine	5117-12-4	15-30 %	Acute Tox. 4 (oral) /H302 Eye Dam./Irrit. 1 /H318 Skin Sens. 1/ H317 STOT RE 2 /H373

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Additives1	Trade Secret	10 – 20 %	Eye Dam. 1 / H318 Skin Sens. 1 / H317 Aquatic Chronic 2 / H411
Additives2	Trade Secret	5 – 15 %	Eye Dam. 1 / H318 Skin Sens. 1 / H317 Aquatic Chronic 2 / H411
Additives3	Trade Secret	1 – 2 %	Repr. 1B / H360FD
Additives4	Trade Secret	≤ 1 %	Carc. 2 / H351

## SECTION 4 : FIRST AID MEASURES

### 4.1. First-aid advice and recommendations for different routes of exposure

#### 4.1.1. Inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

#### 4.1.2. Skin Contact

Wash with plenty of soap and water.

#### 4.1.3. Eyes Contact

Remove contact lenses, if present and easy to do. Continue rinsing.

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

#### 4.1.4. Ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

### 4.2. Most important symptoms and hazardous effects

None

### 4.3. Protection of First-aid personnel

None

### 4.4. Note for physician

None

**SECTION 5 : FIRE-FIGHTING MEASURES****5.1. Applicable extinguishing media**

Water spray, BC-powder, Carbon dioxide (CO<sub>2</sub>)

**5.2. Specific hazards confronted during fire fighting**

Nitrogen oxides (NO<sub>x</sub>), Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

**5.3. Specific fire-fighting procedure**

None

**5.4. Specific protective equipments for fire-fighters**

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

**SECTION 6 : ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions**

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

**6.2. Environmental precautions**

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

**6.3. Cleaning methods**

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder. Covering of drains.

Place in appropriate containers for disposal. Ventilate affected area.

**SECTION 7 : SAFETY HANDLING AND STORAGE****7.1. Handling**

Use local and general ventilation. Use only in well-ventilated areas.

Do not eat, drink and smoke in work areas.

Remove contaminated clothing and protective equipment before entering eating areas.

Wash hands after use.



Never keep food or drink in the vicinity of chemicals.

Never place chemicals in containers that are normally used for food or drink.

## 7.2. Storage

Storage at the area of cool, dry.

Keep away from heat, direct sunlight, rainy and rapid temperature.

Storage temperature between 15°C/ 59°F to 35°C / 95°F.

Close the lid tightly when not in use.

## SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1. Engineering controls

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

### 8.2. Control Parameters

Components	TWA	STEL	CEILING	BEI s
Titanium dioxide	10 mg / m <sup>3</sup>	15 mg / m <sup>3</sup>	-	-

### 8.3. Personal protective equipment

#### 8.3.1 Respiratory protection

In case of inadequate ventilation wear respiratory protection.

#### 8.3.2 Hand protection

Chemical protection gloves are suitable, which are tested according to EN 374.

For example : NBR: acrylonitrile-butadiene rubber

Material thickness :  $\geq 0.6\text{mm}$

Breakthrough times of the glove material : > 480 minutes (permeation: level 6)

#### 8.3.3 Eye protection

Use safety goggles.

#### 8.3.4 Skin protection

Use clothing that provides complete protection to the skin.

### 8.4. Hygiene measures

Do not eat, drink and smoke in work areas.

Wash thoroughly after handling.

Keep clean of operation area.

Take off polluted clothing as soon as possible after work. The clothing can be re-wear only after washed in clean or discard.

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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

Apperance and color	Gray viscous liquid	Odor	Typical acrylate
Odor threshold	N/A	Melting point	N/A
pH value	6 - 8	Boiling point	104.5 °C at 2.05 hPa
Flammable	N/A	Flash point	N/A
Decomposition Temp	N/A	Testing method	N/A
Natural Temp	240°C	Explosive limit	N/A
Vapor pressure	0.5 hPa at 86.6 °C	Vapor density	N/A
Density	1.1 g /cm <sup>3</sup> at 25 °C	Solubility	N/A
Octanol/water distribution coefficient (log Kow)	N/A	Evaporaion rate	N/A

**SECTION 10: STABILITY AND REACTIVITY****10.1. Stability**

Stable under normal condition.

**10.2. Possible hazardous reation under specific conditions**

None

**10.3. Must avoid condition**

UV-radiation/sunlight.

**10.4. Must avoid substances**

Oxidisers.

**10.5. Hazardous decomposed product**

None

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## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on toxicological effects

Test data are not available for the complete mixture.

#### 11.1. Exposure paths

None

#### 11.2. Symptoms

None

#### 11.3. Acute toxicity

Components	route	Species	End point	Value
4,4'Isopropylidenediphenol, polymer with 1-chloro-2,3-epoxypropane, propane-1,2-diol acrylate and succinic anhydride	inhalation: vapour	Rat	LD50	11mg/l/4h
	inhalation: dust/mist	Rat	LD50	4.9mg/l/4h
4-Acryloylmorpholine	oral	Rat	LD50	588 mg/kg
	Dermal	Rat	LD50	> 2,000 mg/kg
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 1,6-diisocyanatohexane	oral	Rat	LD50	> 2,000 mg/kg
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	oral	Rat	LD50	> 5,000 mg/kg
	Dermal	Rat	LD50	> 2,000 mg/kg
Titanium dioxide	oral	Rat	LD50	>10000 mg/kg
	Dermal	Rat	LD50	>10000 mg/kg
	inhalation	Rat	LC50	>5.09 mg/l/4h

#### 11.4. Chronic toxicity

None

#### 11.5. Reproductive and/or Developmental Effects

Components	route	Species	End point	Value
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	oral	Rat	NOAEL pre-mating into lactation for female	200 mg/kg/day

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## SECTION 12: ECOLOGICAL INFORMATION

The product has not been tested. The statement has been derived from the properties of the individual components.

### 12.1. Ecological toxicity

Aquatic toxicity (acute) of components of the mixture				
Components	End point	Value	Species	Exposure time
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 1,6-diisocyanatohexane	EL50	>58mg/l	aquatic invertebrates	48h
4,4'-Isopropylidenediphenol, polymer with 1-chloro-2,3-epoxypropane, propane-1,2-diol acrylate and succinic anhydride	LLC50	>100 mg/l	fish	96 h
	LC50	0.082mg/l	fish	96h
	EL50	>100 mg/l	aquatic invertebrates	48h
	EC50	0.11mg/l	aquatic invertebrates	48h
4-(1-oxo-2-propenyl)-morpholine	LC50	>220mg/l	fish	24h
	EL50	230mg/l	aquatic invertebrates	24h
	EC50	>120mg/l	algae	72h
Oxybis(methyl-2,1-ethanediyl) diacrylate	LC50	4.64 mg/l	fish	96 h
	EC50	22.3 mg/l	aquatic invertebrates	48 h
	ErC50	16.7mg/l	algae	72h
(2,4,6-trioxo-1,3,5-triazine-1,3,5-(2H,4H,6H)-triyli)-2,1-ethanediyl triacrylate	LC50	9.43mg/l	fish	96 h
	EC50	158.3mg/l	aquatic invertebrates	48 h
	ErC50	25.7mg/l	algae	72h
diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	LC50	1.4mg/l	fish	96 h
	EC50	3.53mg/l	aquatic invertebrates	48 h
	ErC50	>2.01mg/l	algae	72h
Aquatic toxicity (chronic) of components of the mixture				
Components	End point	Value	Species	Exposure time
4,4'-Isopropylidenediphenol, polymer with 1-chloro-2,3-	EC50	>1,000 mg/l	microorganisms	3 h



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epoxypropane, propane-1,2-diol acrylate and succinic anhydride				
Oxybis(methyl-2,1-ethanediyl) diacrylate	EC50	>1,000 mg/l	microorganisms	30 min
Diphenyl(2,4,6-trimethyl benzoyl) phosphine oxide	EC50	>1,000 mg/l	microorganisms	180 min

### 12.2. Persistence and degradability

Degradability of components of the mixture				
Components	Process	Degradation rate	Time	Source
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 1,6-diisocyanato hexane	carbon dioxide generation	5%	28d	ECHA
4,4'-Isopropylidenediphenol, polymer with 1-chloro-2,3-epoxypropane, propane-1,2-diol acrylate and succinic anhydride	carbon dioxide generation	5%	29d	ECHA
(2,4,6-trioxo-1,3,5-triazine-1,3,5-(2H,4H,6H)-triyli)-tri-2,1-ethanediyl triacrylate	Aerobic consumption	5%	28d	ECHA
Oxybis(methyl-2,1-ethanediyl) diacrylate	DOC removal	90–100 %	28d	ECHA
Diphenyl(2,4,6-trimethyl benzoyl) phosphine oxide	oxygen depletion	0 -10%	28 d	ECHA

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### 12.3. Bio-accumulative potential

Components	BCF	Log kow	BOD/COD
Oxybis(methyl-2,1-ethanediyl) diacrylate	-	0.01- 0.39 (pHvalue : 7, 24° C)	-
4,4'-Isopropylidene diphenol, polymer with 1-chloro-2,3-epoxypropane, propane-1,2-diol acrylate and succinic anhydride	-	1.1(20.6°C)	-
4-(1-oxo-2-propenyl)-morpholine	-	-0.46(21°C)	-
(2,4,6-trioxo-1,3,5-triazine1,3,5(2H,4H,6H)-triy)tri-2,1-ethanediyl triacrylate	-	1.09( pHvalue : 6.8, 25°C )	-
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 1,6-diisocyanatohexane	-	2.8 – 4.9(25°C)	-
Diphenyl(2,4,6-trimethyl benzoyl) phosphine oxide	47 – 55	3.1 (pH value: 6.4, 23 °C)	-

### 12.4. Mobility in soil

None

### 12.5. Other adverse effects

None

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste disposal methods

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

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### 13.2. Sewage disposal method

Do not empty into drains. Avoid release to the environment.

### 13.3. Contaminated Packaging disposal method

Handle contaminated packages in the same way as the substance itself.

## 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

### Additional information for IMDG CODE 3.4.1 :

According to the general provisions 2.10.2.7, if the volume of the product is less than 5L or the mass is less than 5kg when transported, and the packaging complies with the general provisions in 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8, the product is not regarded as dangerous goods transportation.

## SECTION 15: REGULATORY INFORMATION

### 15.1. List of substances subject to authorisation (REACH, Annex XIV) / SVHC- candidate list

None of the ingredients are listed

### 15.2. Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

None of the ingredients are listed



### 15.3. Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

None of the ingredients are listed

### 15.4. Regulation on persistent organic pollutants (POP)

None of the ingredients are listed.

### 15.5. National inventories

Country	Inventory	Status
AU	AICS	not all ingredients are listed
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	not all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	not all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	not all ingredients are listed

Country	Inventory	Status
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

#### Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NDSL	Non-domestic Substances List (NDSL)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act



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### SECTION 16: OTHER INFORMATION

<b>Reference</b>	US OSHA HCS 29 CFR 1910.1200 / REACH / ECHA
<b>Table formulation unit</b>	Name : Phrozen Tech. Co. Ltd
	Address / Phone : 287 Niupu Rd, Xiangshan Dist, Hsinchu City 3009 1, TAIWAN( R.O.C ) /+886-3621-0505
<b>Table formulator</b>	Job title Occupational Safety & Health manager Name Chun-Yao, Kuo
<b>Table formulation Date</b>	2023.10.24
<b>Remarks</b>	In the above described information, the symbol "N/A" means no relevant information currently.

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**