SAFETY DATA SHEET

Aqua-Gray 4K

普羅森科技股份有限公司 2023-11-14 職安人員

SECTION 1 : IDENTIFICATION

1.1 Product identifier

Product name Aqua-Gray 4K

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.

1.2 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

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,
Hazardous to the aquatic environment (acute hazard) Category 1,
Hazardous to the aquatic environment (chronic hazard) Category 2,

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
Very toxic to aquatic life with long lasting effects.
May damage fertility. May damage the unborn child.

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

Components	CAS number	Weight %	Classification acc. to GHS
Oxybis(methyl-2,1-ethanediyl) diacrylate	57472-68-1	25- 50%	Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Eye Dam. 1 / H318
4,4'-Isopropylidenediphenol, oli-g omeric reaction products with 1-ch loro-2,3-epoxypropane, esters with acrylic acid	55818-57-0	25- 50%	Skin Sens. 1 / H317 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411
Additives1	Trade Secret	5-20%	Acute Tox. 4 / H302 STOT RE 2 / H373 Eye Dam. 1 / H318 Skin Sens. 1 /H317
Additives2	Trade Secret	5-10%	Skin Sens. 1A / H317 Repr. 2 / H361d Aquatic Chronic 2 / H411

Additives3	Trade Secret	5-10%	Acute Tox. 4 / H302 STOT SE 3 / H336
Additives4	Trade Secret	2 - 5%	Repr. 1B / H360FD
Additives5	Trade Secret	< 2%	Carc. 2 / H351
Additives6	Trade Secret	< 0.1%	-

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. Incase of respiratory tract irritation, consult a physician. 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, freshwater 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 effecects

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 (CO2)

5.2 Specific hazards confronted during fire fighting

Carbon monoxide (CO), Carbon dioxide (CO2)

5.3 Specific fire-fighting procedure

None

5.4 Specific protecttive 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 precations

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

6.2. Environmental precations

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°C 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^3	15 mg /m^3	-	-

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 : ⩾ 0.6mm

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.

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	7	**Boiling point**	104.5 °C at 2.05 hPa
Flammable	N/A	**Flash point** **Testing method**	N/A N/A
Decomposition Temp	N/A		
Natural Temp	240℃	**Explosive limit**	N/A
Vapor pressure	0.5 hPa at 86.6 °C	**Vapor density**	N/A
Density	1.12 g /cm³ at 20 °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, Reducing agents

10.5. Hazardous decomposted product

None

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
Polytetrahydrofuran	Oral	Rat	LC50	>3.4ppm/4H
	Inhalation	Rat	LD50	>5000mg/l
Diphenyl(2,4,6-trimethyl benzoyl) 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-trim ethyl benzoyl) phosphine oxide	Ingestion	Rat	NOAEL premating into lactation for female	200 mg/kg/day

SECTION 12: ECOLOGICAL INFORMATION

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

12.1. Ecological toxicity

Aquatic toxicity (acute) of components of the mixture				
Components	**End point**	**Value**	**Species**	**Exposure time**
Oxybis(methyl-2,1-ethanediyl) diacrylate	LC50	4.64mg/l	fish	96h
	EC50	22.3mg/l	aquatic invertebrates	48h
	ErC50	16.7mg/l	algae	72h
4,4'-Isopropylidene diphenol, oli-gomer	LL50	>100mg/l	fish	96h
	LC50	>0.082mg/l	fish	96h
	EC50	>16mg/l	aquatic invertebrates	48h

ic reaction products with 1-chloro-2,3-epoxy propane, es-ters wit h acrylic acid	EL50	105mg/l	algae	72h
	ErC50	17mg/l	algae	72h
2,2-bis(acryloyloxy methyl)butyl acrylate	LC50	0.87mg/l	fish	96h
	ErC50	4.86mg/l	algae	96h
	EC50	7.2mg/l	algae	72h
2-phenoxyethyl acrylate	EC50	<22mg/l	fish	24h
	LC50	3.85mg/l	aquatic invertebrates	24h
	ErC50	4.4mg/l	algae	72h
diphenyl(2,4,6-trimethylbenzoyl) phosphine ox-ide	LC50	1.4mg/l	fish	96h
	EC50	3.53mg/l	aquatic invertebrates	48h
	ErC50	>2.01mg/l	algae	72h

Aquatic toxicity (chronic) of components of the mixture

Components	End point	Value	Species	Exposure time
Oxybis(methyl-2,1-ethanediyl) diacrylate	EC50	>1000mg/l	microorganisms	30mins
4,4'-Isopropylidene diphenol, oli-gomeric reaction products with 1-chloro-2,3-epoxy propane, es-ters with acrylic acid	EC50	>1,000 mg/l	microorganisms	3h
2-phenoxyethyl acrylate	EC50	177mg/l	microorganisms	3h
Diphenyl(2,4,6-trim ethyl benzoyl) phos phine oxide	EC50	>1,000 mg/l	microorganisms	180 min

12.2. Per sistence and degradability

Degradability of components of the mixture

Components	Process	Degradation rate	Time	Source
2,2-bis(acryloyloxy-methyl)butyl	carbon dioxide generation	82 -90%	28d	ECHA

acrylate				
4,4'-Isopropylidene diphenol, polymer with 1- chloro-2,3-epoxypropane, propane-1,2-diol acrylate and succinic anhydride	carbon dioxide generation	5%	29d	ECHA
Oxybis(methyl-2,1-ethanediyl) diacrylate	DOC removal	90–100 %	28d	ECHA
Diphenyl(2,4,6-trimethyl benzoyl) phosphine oxide	oxygen deple-tion	0 -10%	28 d	ECHA
2-phenoxyethyl acrylate	oxygen deple-tion	22.3%	28d	ECHA

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)	
2,2-bis(acryloyloxymethyl)butyl ac-rylate		4.35	
2-phenoxyethyl acrylate		2.58	
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.

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	AU AICS	all ingredients are listed
CA	DSL	all ingredients are listed
CA	NDSL	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
NZ	NZIoC	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

Legend

AIIC	Australian Inventory of Industrial Chemicals
DSL	Domestic Substances List (DSL)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
EU	EC Substance Inventory (EINECS, ELINCS, NLP)
EU	REACH registered substances

CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
NZIoC	New Zealand Inventory of Chemicals
CICR	Chemical Inventory and Control Regulation
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

SECTION 16: OTHER INFORMATION

Reference	US OSHA HCS 29 CFR 1910.1200, ECHA
Table formulation unit	Name : Phrozen Tech. Co. Ltd
	Address / Phone : 287 Niupu Rd, Xiangshan Dist, Hsinchu City 30091, TAIWAN(R.O.C) /+ 886-3-621-0505
Table formulator	Job title : Occupational Safety & Health manager Name : Chun-Yao, Kuo
Table formulation Date	2023.11.14
Remarks	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