SAFETY DATA SHEET

Aqua Macaroon- Purple

普羅森科技股份有限公司 2023-11-27 職安人員

SECTION 1 : IDENTIFICATION

1.1 Product identifier

Product name Aqua Macaroon-Purple

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 2A , Skin sensitization Category 1 , Carcinogenicity Category2, Specific target organ toxicity (single exposure) Category 3 Hazardous to the aquatic environment (chronic hazard) Category 3

2.2 Signal statement

Corrosion, Exclamation mark, Health hazard

2.3 Pictograms

2.4 Signal word WARNING

2.5 Hazard statements

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

2.6 Precautionary statements

Wear protective gloves, Wash thoroughly after handling.

Wear eye/face protection.

IF ON SKIN: Wash with plenty of soap and water.
Take of contaminated clothing and wash before re-use. If skin irritation occurs, seek medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, If present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. Wash hands after handling.
Dispose of contents/container in accordance with local and national regulations.

2.7 Other hazard

None

SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS number	Weight %	Classification acc. to GHS
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1- chloro-2,3-epoxypropane, esters with acrylic acid	55818-57-0	10 – 30%	Skin Sens. 1 / H317 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411
Oxybis(methyl-2,1-ethanediyl) diacrylate	57472-68-1	15 – 25%	Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Eye Dam. 1 / H318
Glycerol propoxylate (1PO/OH) triacrylate	52408-84-1	15-25%	Acute Tox. 4 / H302 STOT RE 2 / H373 Eye Dam. 1 / H318 Skin Sens. 1 /H317
Hexane, 1,6-diisocyanato-, homopolymer, 2-hydroxyethyl acrylate-blocked	264888-31-5	10-20%	Skin Sens. 1A / H317 Skin Irrit. 2 / H315 Eye Dam. 2A / H319
Additives1	Trade Secret	1-4%	-
Additives2	Trade Secret	0.1-2%	Carc. 2 / H351
Additives3	Trade Secret	0.05-0.1%	-

SECTION 4 : FIRST AID MEASURES

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

4.1.1 Inhalation

Keep at rest. Move to fresh air. Consult a physician.

4.1.2 Skin Contact

Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water and seek medical advice.

4.1.3 Eyes Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.

4.1.4 Ingestion

Do not induce vomiting. Keep at rest. Consult a physician.

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) , NOx

5.3 Specific fire-fighting procedure

None

5.4 Specific protecttive equipments for fire-fighters

For fires in enclosed areas, wear self-contained breathing apparatus and protective suit. Do not inhale combustion gases.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precations

Ensure adequate ventilation. Wear personal protective equipment. Remove all sources of ignition. Avoid contact with skin and eyes. Do not breathe vapors or spray mist.

6.2. Environmental precations

Do not flush into surface water.

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

Component	TWA	STEL	CEILING	BEI s

Titanium dioxide	10 mg / m^3	15 mg /m^3	-	-
Carbon black	3.5 mg/ m^3	7 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	Purple viscous liquid	**Odor**	Typical acrylate
Odor threshold	N/A	**Melting point**	N/A
pH value	N/A	**Boiling point**	N/A
Flammable	N/A	**Flash point** **Testing method**	>110°C close up
Decomposition Temp	N/A		
Natural Temp	N/A	**Explosive limit**	N/A
Vapor pressure	N/A	**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

COx, NOx

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
Oxybis(methyl-2,1-ethanediyl) diacrylate	Oral	Rat	LD50	4600 mg/kg
	Oral	Rabbit	LD50	>2g/kg
Glycerol propoxylate (1PO/OH)triacrylate	Oral	Rat	LD50	>2000 mg/kg
	Dermal	Rat	LD50	>2000 mg/kg
Titanium dioxide	Oral	Rat	LD50	>10000 mg/kg

	Dermal	Rat	LD50	>10000 mg/kg
	Ingetion	Rat	LC50	>5.09 mg/l/4h

11.4. Chronic toxicity

None

SECTION 12: ECOLOGICAL INFORMATION

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**
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
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1- chloro-2,3-epoxypropane, esters with acrylic acid	LL50	>100 mg/l	fish	96 h
	LC50	0.082mgl	fish	96h
	EC50	>16mg/l	aquatic invertebrates	48h
	EL50	105mg/l	algae	48h
	ErC50	17mg/l	algae	72h
Glycerol propoxylate (1PO/OH)triacrylate	LC50	5.74mg/l	fish	96h
	EC50	91.4mg/l	aquatic invertebrates	48h
	EC50	12.2mg/l	algae	72h
Hexane, 1,6-diisocyanato-, homopolymer, 2-hydroxyethyl acrylate-blocked	LC50	>100mg/l	fish	96 h
	EC50	>100mg/l	aquatic invertebrates	48 h
	EC50	>100mg/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	>1,000 mg/l	microorganisms	30 min
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid	EC50	>1,000 mg/l	microorganisms	3h

12.2. Per sistence and degradability

Degradability of components of the mixture				
Components	**Process**	**Degradation rate**	**Time**	**Source**
Oxybis(methyl-2,1-ethanediyl) diacrylate	DOC removal	90–100 %	28d	ECHA
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid	oxygen depletion	42%	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'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid		1.6 – 3.8 (pHvalue : 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 / DIN38412 / REACH
Table formulation unit	Name : Phrozen Tech. Co. Ltd
	Address / Phone : 287 Niupu Rd, Xiangshan Dist, Hsinchu City 30091, TAIWAN(R.O.C) /+ 886-3-6210505
Table formulator	Job title : Occupational Safety & Health manager Name : Chun-Yao, Kuo
Table formulation Date	2023.11.27
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

SAFETY DATA SHEET

Aqua Macaroon- Green

普羅森科技股份有限公司 2023-11-27 職安人員

SECTION 1 : IDENTIFICATION

1.1 Product identifier

Product name Aqua Macaroon-Green

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 2A , Skin sensitization Category 1 , Carcinogenicity Category2, Specific target organ toxicity (single exposure) Category 3 Hazardous to the aquatic environment (chronic hazard) Category 3

2.2 Signal statement

Corrosion, Exclamation mark, Health hazard

2.3 Pictograms

2.4 Signal word WARNING

2.5 Hazard statements

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

2.6 Precautionary statements

Wear protective gloves, Wash thoroughly after handling.

Wear eye/face protection.

IF ON SKIN: Wash with plenty of soap and water.
Take of contaminated clothing and wash before re-use. If skin irritation occurs, seek medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, If present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. Wash hands after handling.
Dispose of contents/container in accordance with local and national regulations.

2.7 Other hazard

None

SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS number	Weight %	Classification acc. to GHS
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1- chloro-2,3-epoxypropane, esters with acrylic acid	55818-57-0	10 – 30%	Skin Sens. 1 / H317 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411
Oxybis(methyl-2,1-ethanediyl) diacrylate	57472-68-1	15 – 25%	Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Eye Dam. 1 / H318
Glycerol propoxylate (1PO/OH) triacrylate	52408-84-1	15-25%	Acute Tox. 4 / H302 STOT RE 2 / H373 Eye Dam. 1 / H318 Skin Sens. 1 /H317
Hexane, 1,6-diisocyanato-, homopolymer, 2-hydroxyethyl acrylate-blocked	264888-31-5	10-20%	Skin Sens. 1A / H317 Skin Irrit. 2 / H315 Eye Dam. 2A / H319
Additives1	Trade Secret	1-4%	-
Additives2	Trade Secret	0.1-2%	Carc. 2 / H351
Additives3	Trade Secret	0.05-0.1%	-

SECTION 4 : FIRST AID MEASURES

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

4.1.1 Inhalation

Keep at rest. Move to fresh air. Consult a physician.

4.1.2 Skin Contact

Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water and seek medical advice.

4.1.3 Eyes Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.

4.1.4 Ingestion

Do not induce vomiting. Keep at rest. Consult a physician.

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) , NOx

5.3 Specific fire-fighting procedure

None

5.4 Specific protecttive equipments for fire-fighters

For fires in enclosed areas, wear self-contained breathing apparatus and protective suit. Do not inhale combustion gases.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precations

Ensure adequate ventilation. Wear personal protective equipment. Remove all sources of ignition. Avoid contact with skin and eyes. Do not breathe vapors or spray mist.

6.2. Environmental precations

Do not flush into surface water.

6.3. Cleaning methods

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur(dia tomite), 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

Component	TWA	STEL	CEILING	BEI s

Titanium dioxide	10 mg / m^3	15 mg /m^3	-	-
Carbon black	3.5 mg/ m^3	7 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	Green viscous liquid	**Odor**	Typical acrylate
Odor threshold	N/A	**Melting point**	N/A
pH value	N/A	**Boiling point**	N/A
Flammable	N/A	**Flash point** **Testing method**	>110°C close up
Decomposition Temp	N/A		
Natural Temp	N/A	**Explosive limit**	N/A
Vapor pressure	N/A	**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

COx, NOx

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
Oxybis(methyl-2,1-ethanediyl) diacrylate	Oral	Rat	LD50	4600 mg/kg
	Oral	Rabbit	LD50	>2g/kg
Glycerol propoxylate (1PO/OH)triacrylate	Oral	Rat	LD50	>2000 mg/kg
	Dermal	Rat	LD50	>2000 mg/kg
Titanium dioxide	Oral	Rat	LD50	>10000 mg/kg

	Dermal	Rat	LD50	>10000 mg/kg
	Ingetion	Rat	LC50	>5.09 mg/l/4h

11.4. Chronic toxicity

None

SECTION 12: ECOLOGICAL INFORMATION

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**
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
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1- chloro-2,3-epoxypropane, esters with acrylic acid	LL50	>100 mg/l	fish	96 h
	LC50	0.082mgl	fish	96h
	EC50	>16mg/l	aquatic invertebrates	48h
	EL50	105mg/l	algae	48h
	ErC50	17mg/l	algae	72h
Glycerol propoxylate (1PO/OH)triacrylate	LC50	5.74mg/l	fish	96h
	EC50	91.4mg/l	aquatic invertebrates	48h
	EC50	12.2mg/l	algae	72h
Hexane, 1,6-diisocyanato-, homopolymer, 2-hydroxyethyl acrylate-blocked	LC50	>100mg/l	fish	96 h
	EC50	>100mg/l	aquatic invertebrates	48 h
	EC50	>100mg/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	>1,000 mg/l	microorganisms	30 min
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid	EC50	>1,000 mg/l	microorganisms	3h

12.2. Per sistence and degradability

Degradability of components of the mixture				
Components	**Process**	**Degradation rate**	**Time**	**Source**
Oxybis(methyl-2,1-ethanediyl) diacrylate	DOC removal	90–100 %	28d	ECHA
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid	oxygen depletion	42%	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'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid		1.6 – 3.8 (pHvalue : 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 / DIN38412 / REACH
Table formulation unit	Name : Phrozen Tech. Co. Ltd
	Address / Phone : 287 Niupu Rd, Xiangshan Dist, Hsinchu City 30091, TAIWAN(R.O.C) /+ 886-3-6210505
Table formulator	Job title : Occupational Safety & Health manager Name : Chun-Yao, Kuo
Table formulation Date	2023.11.27
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

SAFETY DATA SHEET

Aqua Macaroon-Yellow

普羅森科技股份有限公司 2023-11-27 職安人員

SECTION 1 : IDENTIFICATION

1.1 Product identifier

Product name Aqua Macaroon-Yellow

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 2A , Skin sensitization Category 1 , Carcinogenicity Category2, Specific target organ toxicity (single exposure) Category 3 Hazardous to the aquatic environment (chronic hazard) Category 3

2.2 Signal statement

Corrosion, Exclamation mark, Health hazard

2.3 Pictograms

2.4 Signal word WARNING

2.5 Hazard statements

Causes skin irritation

Causes serious eye irritation

May cause an allergic skin reaction

2.6 Precautionary statements

Wear protective gloves, Wash thoroughly after handling.

Wear eye/face protection.

IF ON SKIN: Wash with plenty of soap and water.
Take of contaminated clothing and wash before re-use. If skin irritation occurs, seek medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, If present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. Wash hands after handling.
Dispose of contents/container in accordance with local and national regulations.

2.7 Other hazard

None

SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS number	Weight %	Classification acc. to GHS
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid	55818-57-0	10 – 30%	Skin Sens. 1 / H317 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411
Oxybis(methyl-2,1-ethanediyl) diacrylate	57472-68-1	15 – 25%	Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Eye Dam. 1 / H318
Glycerol propoxylate (1PO/OH) triacrylate	52408-84-1	15-25%	Acute Tox. 4 / H302 STOT RE 2 / H373 Eye Dam. 1 / H318 Skin Sens. 1 /H317
Hexane, 1,6-diisocyanato-, homopolymer, 2-hydroxyethyl acrylate-blocked	264888-31-5	10-20%	Skin Sens. 1A / H317 Skin Irrit. 2 / H315 Eye Dam. 2A / H319
Additives1	Trade Secret	1-4%	-
Additives2	Trade Secret	0.1-2%	Carc. 2 / H351
Additives3	Trade Secret	0.05-0.1%	-

SECTION 4 : FIRST AID MEASURES

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

4.1.1 Inhalation

Keep at rest. Move to fresh air. Consult a physician.

4.1.2 Skin Contact

Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water and seek medical advice.

4.1.3 Eyes Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.

4.1.4 Ingestion

Do not induce vomiting. Keep at rest. Consult a physician.

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) , NOx

5.3 Specific fire-fighting procedure

None

5.4 Specific protecttive equipments for fire-fighters

For fires in enclosed areas, wear self-contained breathing apparatus and protective suit. Do not inhale combustion gases.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precations

Ensure adequate ventilation. Wear personal protective equipment. Remove all sources of ignition. Avoid contact with skin and eyes. Do not breathe vapors or spray mist.

6.2. Environmental precations

Do not flush into surface water.

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

Component	TWA	STEL	CEILING	BEI s

Titanium dioxide	10 mg / m^3	15 mg /m^3	-	-
Carbon black	3.5 mg/ m^3	7 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	Yellow viscous liquid	**Odor**	Typical acrylate
Odor threshold	N/A	**Melting point**	N/A
pH value	N/A	**Boiling point**	N/A
Flammable	N/A	**Flash point** **Testing method**	>110°C close up
Decomposition Temp	N/A		
Natural Temp	N/A	**Explosive limit**	N/A
Vapor pressure	N/A	**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

COx, NOx

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
Oxybis(methyl-2,1-ethanediyl) diacrylate	Oral	Rat	LD50	4600 mg/kg
	Oral	Rabbit	LD50	>2g/kg
Glycerol propoxylate (1PO/OH)triacrylate	Oral	Rat	LD50	>2000 mg/kg
	Dermal	Rat	LD50	>2000 mg/kg
Titanium dioxide	Oral	Rat	LD50	>10000 mg/kg

	Dermal	Rat	LD50	>10000 mg/kg
	Ingetion	Rat	LC50	>5.09 mg/l/4h

11.4. Chronic toxicity

None

SECTION 12: ECOLOGICAL INFORMATION

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**
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
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1- chloro-2,3-epoxypropane, esters with acrylic acid	LL50	>100 mg/l	fish	96 h
	LC50	0.082mgl	fish	96h
	EC50	>16mg/l	aquatic invertebrates	48h
	EL50	105mg/l	algae	48h
	ErC50	17mg/l	algae	72h
Glycerol propoxylate (1PO/OH)triacrylate	LC50	5.74mg/l	fish	96h
	EC50	91.4mg/l	aquatic invertebrates	48h
	EC50	12.2mg/l	algae	72h
Hexane, 1,6-diisocyanato-, homopolymer, 2-hydroxyethyl acrylate-blocked	LC50	>100mg/l	fish	96 h
	EC50	>100mg/l	aquatic invertebrates	48 h
	EC50	>100mg/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	>1,000 mg/l	microorganisms	30 min
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid	EC50	>1,000 mg/l	microorganisms	3h

12.2. Per sistence and degradability

Degradability of components of the mixture				
Components	**Process**	**Degradation rate**	**Time**	**Source**
Oxybis(methyl-2,1-ethanediyl) diacrylate	DOC removal	90–100 %	28d	ECHA
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid	oxygen depletion	42%	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'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, esters with acrylic acid		1.6 – 3.8 (pHvalue : 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 / DIN38412 / REACH
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	Address / Phone : 287 Niupu Rd, Xiangshan Dist, Hsinchu City 30091, TAIWAN(R.O.C) /+ 886-3-6210505
Table formulator	Job title : Occupational Safety & Health manager Name : Chun-Yao, Kuo
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