Safety Data Sheet

Jewelry Castable Resin **JC-01R** **Diffuser3D**

Section 1. Identification

GHS product identifier :	JEWELRY CASTABLE RESIN JC-01R
Chemical name:	Not applicable.
Other means of identification:	Not available.
Product type:	Liquid.
Recommended use :	UV resin for monoLCD/DLP 3D printers for direct casting of jewelry
Company:	Ambrose & Co'ltd
	Aria202,Kawada-machi,Kofu,Ymananashi,Japan 400-0811
Emergency telephone number:	+81-55-220-1612
e-mail address of person responsible for this SDS :	info@diffuser3d.com

Section 2. Hazards identification

Classification of the substance or mixture :

ACUTE TOXICITY (oral) - Category 5
ACUTE TOXICITY (dermal) - Category 5
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)
(Respiratory tract irritation) - Category 3
ACUTE AQUATIC HAZARD - Category 2 LONG-TERM AQUATIC HAZARD - Category 2

GHS label elements:

Signal word : Warning

Hazard statements :

H303 + H313 - May be harmful if swallowed or in contact with skin.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction. H335 - May cause respiratory irritation.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention :

P280 - Wear protective gloves: 4 - 8 hours (breakthrough time): Nitril rubber (0.70 mm).
Wear eye or face protection.
P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment.
P261 - Avoid breathing vapour.
P264 - Wash hands thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.

Response :

P391 - Collect spillage
P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. P301 + P312 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell.
P302 + P352 + P312 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Take off contaminated clothing and wash it before reuse.
P333 + P313 - If skin irritation or rash occurs: Get medical attention.
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 attention.

Storage : P405 - Store locked up.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : None known.

Section 3. Composition/information on ingredients

Substance/mixture Mixture.

Other means of identification Not available.

Ingredient name	%	CAS number
Aliphatic Urethane Diacrylate oligomer	0-50%	Unknown
Hexamethylene diacrylate	0-20%	13048-33-4
trimethylolpropane triacrylate	0-50%	15625-89-5
additive	<5%	13463-67-7

Remarks:

This product is intended solely for evaluation purposes only by laboratory personnel qualified by training or experience in the skills of safely handling experimental chemicals. The health and safety aspects of this material have not been fully evaluated.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Causes serious eye irritation. May cause respiratory irritation. May be harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction. May be harmful if swallowed. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eyes: Adverse symptoms may include the following: pain watering redness

Inhalation : Adverse symptoms may include the following: respiratory tract irritation coughing

Skin contact : Adverse symptoms may include the following: irritation redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Section 5. Fire-fighting measures

Extinguishing media

Suitable :	Use an extinguishing agent suitable for the surrounding fire.
Not suitable :	None known.
Specific hazards arising from the chemical:	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products:	In case of fire, may produce toxic and/or corrosive decomposition products.
Special precautions for firefighters:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Remarks	This material will support combustion if ignited.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency Personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders :	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".
Environmental precautions:	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill :	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill :	Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas.Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures :	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene:	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Conditions for safe storage, including any incompatibilities:	Store in accordance with local regulations. Store in a dry, cool and well- ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store in original container, protected from direct sunlight.

Section 8. Exposure controls/personal protection

Control parameters Occupational exposure limits None.

Appropriate engineering controls:	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
Environmental exposure Controls :	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection:	Safety glasses with side shields.

Skin protection

Hand protection:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Skin protection:	Chemical-resistant protective suit.
Respiratory protection:	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Physical state:	Liquid
Colour:	Yellow
Odour:	Slight.
Odour threshold:	Not available.
pH:	Not available.
Melting point:	Not available.
Boiling point :	Not available.
Flash point:	>150 °C (Close-cup, estimate)
Evaporation rate :	Not available.
Burning rate :	Not applicable.
Burning time :	Not applicable.
Lower and upper explosive (flammable) limits	Not available.
Vapour pressure:	Not available.
Vapour density:	Not available.
Relative density:	Not available.
Bulk density:	Not available.
Solubility:	Not available.
Solubility in water :	Not available.
Partition coefficient: noctanol/ water:	Not available.
Auto-ignition temperature:	Not available.
Decomposition temperature :	Not available.
SADT :	Not available.
Conductivity :	Not available.
Molecular weight :	Not available.
Instability temperature :	Not available.
Minimum ignition Temperature:	Not available.
Minimum ignition energy :	Not available.
VOC content :	Not available.
Critical temperature :	Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.Stable under recommended storage and handling conditions (see Section 7).

Possibility of hazardous Reactions: Under normal conditions of storage and use, hazardous reactions will not occur. May polymerise on exposure to light. During heating, spontaneous polymerisation can occur.

Conditions to avoid: No specific data.Keep away from heat, sparks and flame. May polymerise on exposure to light.

Incompatible materials : Strong oxidising materials, peroxides, free radical initiators, reactive metals, strong bases.

Hazardous decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Hexamethylene diacrylate	LC0 Inhalation Dusts and mists	Rat - Male, Female	0.41 mg/l Air	7 hours
	LD50 Dermal	Rabbit	3650 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
trimethylolpropane triacrylate	LC50 Inhalation Vapor	Rat	>0.55 mg/l (LC0 =0.55 mg/l / 6 H)	6 hours
	LD50 Dermal	Rabbit	5170 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Aliphatic Urethane Diacrylate	Skin - Moderate irritant	Rabbit	-	500 mg	-
	Eyes - Severe irritant	Rabbit	-	24 hours 100ml	-
	Skin - Erythema/Eschar	Rabbit	2	-	-
	Skin - Oedema	Rabbit	1	-	-
	Eyes - Cornea opacity	Rabbit	1	-	-
	Eyes - Iris lesion	Rabbit	0.067	-	-
	Eyes - Redness of the conjunctivae	Rabbit	2.67	-	-
	Eyes - Oedema of the conjunctivae	Rabbit	2	-	-
Hexamethylene diacrylate	Skin - Erythema/Eschar	Rabbit	2	4 hours 0.5 ml	14 days
	Skin - Oedema	Rabbit	2.67	4 hours 0.5 ml	14 days
trimethylolpropane triacrylate	Skin - Erythema/Eschar	Rabbit	1	24 hours 0.5	24 to 72 hours
	Skin - Edema	Rabbit	0.33	24 hours 0.5	24 to 72 hours
	Eyes - Cornea opacity	Rabbit	1.33	0.1 ml	24 to 72 hours
	Eyes - Iris lesion	Rabbit	1	0.1 ml	24 to 72 hours
	Eyes - Redness of the conjunctivae	Rabbit	2.5	0.1 ml	24 to 72 hours

Sensitisation

Product/ingredient name	Route of Exposure	Species	Result
Hexamethylene diacrylate	Skin	Guinea pig	Sensitising

Information on the likely routes of exposure: not available

Potential acute health effects

Eye contact: Causes serious eye irritation.

Inhalation : May cause respiratory irritation.

Skin contact : May be harmful in contact with skin. Causes mild skin irritation. May cause an allergic skin reaction.

Ingestion : May be harmful if swallowed. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following: pain or irritation watering redness

Inhalation : Adverse symptoms may include the following: respiratory tract irritation coughing

Skin contact: Adverse symptoms may include the following: pain or irritation redness

Ingestion : No specific data.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
trimethylolpropane triacrylate	Sub-acute NOAEL Oral	Rat - Male, Female	>500 mg/kg /day (Highest tested dose)	-
	Sub-acute NOAEL Dermal	Rat - Male, Female	>200 mg/kg /day (Highest tested dose. No treatment-related mortality or significant adverse clinical effects occurred.)	-

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
May cause damage to organs through prolonged or repeated exposure if swallowed.
Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity Acute toxicity estimate

Route	ATE value
Oral	- mg/kg
Dermal	- mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Hexamethylene diacrylate	Acute EC50 1.5 mg/l Fresh water	Algae	72 hours
	Acute LC50 2.6 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 4.6 to 10 mg/l Fresh water	Fish - Leuciscus idus	96 hours
trimethylolpropane triacrylate	Acute EC50 18.8 mg/l Fresh water	Algae	72 hours
	Acute LC50 19.9 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 0.87 mg/l Fresh water	Fish	96 hours

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Hexamethylene diacrylate	OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)	60 to 70 % - Readily - 1	-	-
trimethylolpropane triacrylate	OECD 301B Ready Biodegradability - CO_2 Evolution Test	82 to 90 % - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Hexamethylene diacrylate	-	-	Readily
trimethylolpropane triacrylate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Hexamethylene diacrylate	2.81		low
trimethylolpropane triacrylate	4.35		low

Mobility in soil
Soil/water partition coefficient (KOC): Not available.
Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non- recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated	Not regulated	Not regulated
UN proper shipping name			

Transport hazard class(es) -			
Packing group			
Environmental hazards			
Additional information			

Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Regulation on the Labor Safety and Health Facilities

Regulations of Labelling and Hazard Communication of Hazardous Chemicals Article 84 of the Regulations Governing Road Traffic Safety

Clearance and Disposal of Industrial Waste Methods and Facilities Standards for the Storage

Section 16. Other information

Responsible name: Ambrose & Co'ltd

Aria202,Kawada-machi,Kofu,Ymananashi,Japan 400-0811

Date of issue/Date of Revision: 12-Dec-22

Date of previous issue: -

Version: 1

Key to abbreviations :

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient UN = United Nations

References : **Not available.**

Notice to reader

The information contained in the Safety Data Sheet is based on our data available on the date of publication. The information is intended to aid the user in controlling the handling risks; it is not to be construed as a warranty or specification of the product quality. The information may not be or may not altogether be applicable to combinations of the product with other substances or to particular applications. The user is responsible for ensuring that appropriate precautions are taken and for satisfying themselves that the data are suitable and sufficient for the product's intended purpose. In case of any unclarity we advise consulting the supplier or an expert.