



ACKURETTA

MATERIAL SAFETY DATA SHEET

Section 1: Identification

Product Name: Ackuretta CURO Denture

Chemical Name/Synonyms: Additive plastic

Application: Methacrylate-based resin 3D printing systems with 385 nm or 405 nm light sources for fabrication of dental spacers.

Company: Ackuretta Technologies Pvt Ltd

Manufacturer: MACK4D
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Section 2: Hazard(s) Identification

Hazard Classification: According to Regulation (EC) No. 1272/2008:

Skin irrit.	Cat. 2	H315
Skin sens	Cat. 1	H317
Eye irrit.	Cat. 2	H319
Aquatic chronic	Cat. 2	H411

Pictograms:



Signal Word(s): hazard

Hazard Statements:

Hazard warnings:

H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H411	Toxic to aquatic life with long lasting effects

Precautionary Statements:

P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash contaminated skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/containers in accordance with local regulations.

Description of other hazards: NA						
Section 3: Composition/Information on Ingredients						
Chemical Name	Percentage	EC No.	CAS No.	REACH Registration No.	Classification according to Regulation (EC) No. 1272/2008	Hazard class and category
Aliphatic difunctional methacrylate	<50	276-957-5	72869-86- 4	01-2120751202-; 68-XXXX	H317 H411	Skin Sens 1B Aquatic Chronic 2
2.2' ethylenedioxydiethyl dimethacrylate	<40		109-16-0	01-2119969287-21-XXXX	H317	Skin Sens 1
Aliphatic urethane Acrylate	<20			exempt	H302 H315 H318 H317 H411	Acute Tox. 4 Skin Irrit. 2 Eye Dam. 1 Skin Sens. 1 Aquatic Chronic 2
Phosphine oxide	<2.5	278-355-8	75980-60- 8		H317 H361 H411	Skin Sens 1 Repr 2 Aquatic chronic 1
Section 4: First Aid Measures						
<p>General information: Immediately remove stained and soaked clothing. If symptoms are present or in case you are in any doubt, seek medical advice. If the person loses consciousness, put them in the recovery position and seek medical advice immediately..</p> <p>After inhalation: Make sure that there is fresh air. If the product irritates the respiratory tract, consult a doctor immediately.</p> <p>After contact with skin: Wash out and rinse with plenty of soap and water.</p> <p>After contact with eyes: In the event of contact with the eyes, immediately remove contact lenses and rinse with running water for 10-15 minutes while keeping the eyes open. Consult an eye specialist as soon as possible.</p> <p>After swallowing: Never administer something orally to an unconscious person or someone who is experiencing cramps. Consult a doctor immediately. Do not induce vomiting.</p> <p>The most significant acute and delayed occurring symptoms and impact</p> <p>Skin contact: May cause an allergic skin reaction.</p> <p>Information about emergency medical aid or special treatment</p> <p>Note for the physician: Treat symptomatically.</p>						
Section 5. Fire-fighting procedures						
<p>Fire-fighting procedures</p> <p>Solvents</p> <p>Suitable solvents: Water spray, foam, dry fire extinguisher or carbon dioxide.</p> <p>Unsuitable solvents: Do not use a water jet as an extinguishing agent, as this will cause the fire to spread.</p> <p>Particular hazards arising from substance or mixture</p> <p>Hazardous decomposition products: Thermal decomposition or combustion products may contain the following substances: Carbon oxides.</p> <p>Information for fire-fighting</p> <p>Safety precautions during fire-fighting: No actions should be taken without appropriate training or which are associated with personal risk.</p> <p>Particular protective equipment for fire-fighters: Wear self-contained breathing apparatuses (SCBA) and suitable protective clothing.</p>						
Section 6. Accidental Release Measures						

Personal precautions: At work, wear suitable protective clothing, including gloves, safety goggles/face guard, respiratory protection, boots, or other clothing or an apron as appropriate. Suitable respiratory protection in the event of inadequate ventilation.

Measures for environmental protection: Environmental protection measures to prevent discharge into the environment.

Measures for cleaning/collecting: Methods for cleaning: No smoking, sparks, flames or other ignition sources near spillages. Bind leaked material with sand or another inert absorbent. Collect it and fill a suitable disposal bin, then seal securely. Containers with collected spilled material must have the correct hazard labeling. Spillages must be collected and disposed of in accordance with the information in Section 13.

Section 7: Handling and Storage

Safety precautions for safe handling

Safety precautions during use: Avoid contact with the eyes and skin. Wash contaminated skin thoroughly after handling. The hands and all contaminated parts of the body must be washed with soap and water before leaving the factory premises. Keep away from heat, sparks and open flame. Mechanical suction is required if dust is discharged during handling. Open and handle containers with care. At work, wear suitable safety equipment in the event of longer exposure and/or high concentrations of vapors, spray or mist.

General work hygiene measures: When using the product, do not eat, drink or smoke.

Conditions for safe storage, taking cases of incompatibility into account

Safety precautions for storage: Store in a cool and dry place in a tightly sealed original container. Store at temperatures between 5°C and 30°C. Keep away from frost and direct sunlight. Keep away from hot surfaces, sparks, open flames and other types of ignition sources. Do not smoke.

Specific end uses

Intended end use(s): The intended uses of this product are described as the application in Section 1.

Section 8: Exposure Controls/Personal Protection

Parameters to be monitored: No maximum allowable concentration(s) is/are known for the ingredient(s).

Limitation and monitoring of exposure

Protective equipment



Suitable technical controller: Adequate room ventilation and local aspiration must be ensured. The maximum allowable concentration of the product or ingredients must be observed.

Eye/face protection: Eye protection corresponding to a recognized standard should be worn if a risk assessment shows that eye contact is possible. The following personal protective clothing should be worn: Chemical safety goggles. Wear close-fitting chemical safety goggles or face protection.

Hand protection: Wear protective gloves. In accordance with the data specified by the protective glove manufacturers, it is required while using them to check whether the gloves maintain their repellent properties and to change them as soon as damage is detected. In the case of exposure up to 8 hours, protective gloves made of the following material must be worn: Nitrile rubber.

Other skin and personal protection: Avoid contact with the skin. Wear suitable clothing to prevent possible skin contact.

Hygiene measures: Wash contaminated skin thoroughly after handling. Before removing the clothing, wash contaminated clothing and skin immediately with plenty of water. Immediately remove all contaminated garments and wash before wearing them again. Contaminated work clothing should not be allowed out of the workplace. When using the product, do not eat, drink or smoke.

Respiratory protection: If ventilation is inadequate, suitable respiratory protection must be worn. Wear a protective mask with full face protection and the following filter cartridge: Filter against organic vapors. Highly effective particle filters.

General protective and hygienic measures: Adequate room ventilation and local aspiration must be ensured. The maximum allowable concentration of the product or ingredients must be observed. Avoid contact with the skin. Wear suitable clothing to prevent possible skin contact. Wash contaminated skin thoroughly after handling. Before removing the clothing, wash contaminated clothing and skin immediately with plenty of water. Immediately remove all contaminated garments and wash before wearing them again. Contaminated work clothing should not be allowed out of the workplace. When using the product, do not eat, drink or smoke.

Breathing equipment: If ventilation is inadequate, suitable respiratory protection must be worn. Wear a protective mask with full face protection and the following filter cartridge: Filter against organic vapors. Highly effective particle filters.

Protection of hands: Wear protective gloves. In accordance with the data specified by the protective glove manufacturers, it is required while using them to check whether the gloves maintain their repellent properties and to change them as soon as damage is detected. In the case of exposure up to 8 hours, protective gloves made of the following material must be worn: Nitrile rubber.

Eye protection: Eye protection corresponding to a recognized standard should be worn if a risk assessment shows that eye contact is possible.

Section 9: Physical and Chemical Properties

Form: Liquid
Odor: Esther
Colour: Various gingiva colors
Odor threshold:
pH: Not determined
Melting point/melting range: Not determined
Boiling point/boiling range: Not determined
Flash point: >150°C
Evaporation rate:
Flammability: Not determined
Upper/lower flammability or explosive limits: Not determined
Auto ignition temperature: Not determined
Danger of explosion: Not determined
Vapor pressure: Not determined
Relative density: 1.1g/cm³
Solubility: Insoluble in water; Soluble in most organic solvents
Viscosity: Approx. 700-1200 Pa s

Section 10: Stability and Reactivity

Reactivity: No information is available
Chemical stability: Stable at normal room temperatures
Possible hazardous reactions: May polymerize
Conditions to avoid: Incompatible conditions: Reaction with light, risk of polymerization. Keep away from heat, flames and other ignition sources. Do not expose to high temperatures or direct sunlight. Avoid contact with strong oxidizers
Incompatible materials: Incompatible materials Keep away from radical-forming initiators, peroxides, strongly alkaline substances and reactive metals to prevent exothermic polymerization reactions.
Hazardous decomposition products: Carbon oxides

Section 11: Toxicological Information

Aliphatic difunctional methacrylate (at 100%)
Acute toxicity – oral LD50: >5000 mg/kg, oral, rat
Acute toxicity – dermal LD50: >2000 mg/kg, dermal, rat
Acute toxicity – inhalative LC50: No information available
Caustic/irritant effect on the skin: Does not cause irritation
Severe eye damage/irritation: Does not cause irritation
Respiratory tract sensitization: No information available
Skin sensitization: Sensitizing
Germ cell mutagenicity: Bacterial reverse mutation test: Negative

Carcinogenicity: No information available

Reproductive toxicity: Fertility - NOAEL, 1000 mg/kg KG/day, oral, rat P

Specific target organ toxicity (repeated exposure): STOT - repeated exposure NOAEL 100 mg/kg KG/day, oral, rat

2.2' ethylenedioxydiethyl dimethacrylate (at 100%)

Acute toxicity – oral LD50: No information available

Acute toxicity – dermal LD50: >2000 mg/kg, dermal, mouse

Acute toxicity – inhalative LC50: No information is available

Caustic/irritant effect on the skin: Does not cause irritation

Severe eye damage/irritation: Does not cause irritation

Respiratory tract sensitization: No information is available

Skin sensitization: Sensitizing

Germ cell mutagenicity / genotoxicity - in vitro: Gene mutation: Negative

Carcinogenicity: No indication of carcinogenicity in animal experiments

Reproductive toxicity - fertility: Screening - NOAEL, 1000 mg/kg KG/day, oral, rat P

Reproductive toxicity - Development: Maternal toxicity: - NOAEL: 1000 mg/kg KG/day, oral, rat

Specific target organ toxicity (repeated exposure): NOAEL 1,000 mg/kg KG/day, oral, rat NOAEL 2000 mg/kg KG/day, dermal, mouse

Aliphatic urethane Acrylate (at 100%)

Acute toxicity – oral LD50: 540 mg/kg, oral, rat

Acute toxicity – dermal LD50: >2000 mg/kg, dermal, rabbit

Acute toxicity – inhalative LC50: No information is available

Caustic/irritant effect on the skin: May cause skin irritation

Severe eye damage/irritation: May cause severe eye irritation

Respiratory tract sensitization: No information is available

Skin sensitization: Non-sensitizing

Germ cell mutagenicity / genotoxicity - in vitro Carcinogenicity: Gene mutation: Negative

Reproductive toxicity - fertility: Fertility: - NOAEL 200 mg/kg/d, oral, rat P

Reproductive toxicity - Development: Embryotoxicity: - NOAEL: 75 mg/kg KG/day, oral, rabbit

Specific target organ toxicity (repeated exposure): NOAEL 25 mg/kg KG/day, oral, rat

Phosphine oxide (at 100%)

Acute toxicity – oral LD50: No information available

Acute toxicity – dermal LD50 >2000 mg/kg, dermal, rat: No information available

Acute toxicity – inhalative LC50: No information available

Severe eye damage/irritation: No information available

Respiratory tract sensitization: No information available

Skin sensitization: No information available

Germ cell mutagenicity/genotoxicity - in vitro: No information available

Carcinogenicity: No information available

Reproductive toxicity - fertility: Suspected of damaging fertility or the unborn child

Reproductive toxicity - Development: No information available

Specific target organ toxicity (repeated exposure): No information available

Section 12: Ecological Information (non-mandatory)

Toxicity**Aliphatic difunctional methacrylate (at 100%)**

Acute toxicity - fish: LC50, 96 hours: 10.1 mg/l, Brachydanio rerio (zebrafish); **Acute toxicity - invertebrate aquatic animals:** EC50, 48 hours: >1.2 mg/l, Daphnia magna; **Acute toxicity - aquatic plants:** NOEC, 72 hours: 0.21 mg/l, Desmodemus subspicatus; **Acute toxicity - microorganisms:** NOEC, 14 days: >=36.1 mg/l, activated sludge

2.2' ethylenedioxydiethyl dimethacrylate (at 100%)

Acute toxicity - fish: LC50, 96 hours: 16.4 mg/l, Brachydanio rerio (zebrafish); **Acute toxicity - invertebrate aquatic animals:** EC50, 21 days: 51.9 mg/l, Daphnia magna; **Acute toxicity - aquatic plants:** EC80, 72 hours: > 100 mg/l, Pseudokirchneriella subcapitata **Acute toxicity - microorganisms:** No information available

Aliphatic urethane Acrylate (at 100%)

Acute toxicity - fish: LC50, 96 hours: 3.2mg/L mg/l, fish; **Acute toxicity - invertebrate aquatic animals:** EC50, 48 hours: 13mg/L mg/l, Daphnia magna; **Acute toxicity - aquatic plants:** NOEC, 96 hours: 0.31 mg/l, Pseudokirchneriella subcapitata; **Acute toxicity - microorganisms:** EC50, 3 hours: 100 mg/l, activated sludge

Phosphine oxide (at 100%)

Acute toxicity - fish: No information available; **Acute toxicity - invertebrate aquatic animals:** No information available; **Acute toxicity - aquatic plants:** No information available; **Acute toxicity - microorganisms:** No information available

Mobility**Aliphatic difunctional methacrylate (at 100%)**

Adsorption/desorption coefficient Calculation - Koc: 4516 @ 20°C

2.2' ethylenedioxydiethyl dimethacrylate (at 100%)

Adsorption/desorption coefficient Not determined

Aliphatic urethane Acrylate (at 100%)

Adsorption/desorption coefficient Not determined

Phosphine oxide (at 100%)

Adsorption/desorption coefficient No information available

Biodegradation: The product is not easily biodegradable.

Bioaccumulation

Aliphatic difunctional methacrylate (at 100%) - Distribution coefficient: log Kow: 3.39

2.2' ethylenedioxydiethyl dimethacrylate (at 100%) - Distribution coefficient log Kow: 2.3

Aliphatic urethane Acrylate (at 100%) - Distribution coefficient log Kow: 1.69

Phosphine oxide (at 100%) - Distribution coefficient: No information available

Persistence and degradability

The product is not easily biodegradable.

Bioaccumulation potential

Aliphatic difunctional methacrylate (at 100%) - Distribution coefficient: log Kow: 3.39

2.2' ethylenedioxydiethyl dimethacrylate (at 100%) - Distribution coefficient: log Kow: 2.3

Aliphatic urethane Acrylate (at 100%) - Distribution coefficient: log Kow: 1.69

Phosphine oxide (at 100%) - Distribution coefficient: No information available

Mobility on the ground

Aliphatic difunctional methacrylate (at 100%) - Adsorption/desorption coefficient: Calculation - Koc: 4516 @ 20°C

2.2' ethylenedioxydiethyl dimethacrylate (at 100%) - Adsorption/desorption coefficient: Not determined

Aliphatic urethane Acrylate (at 100%) - Adsorption/desorption coefficient: Not determined

Phosphine oxide (at 100%) - Adsorption/desorption coefficient: No information available

Results of PBT and vPvB assessment

Aliphatic difunctional methacrylate: This substance must not be classified as PBT or vPvB in accordance with the currently valid EU classification criteria.

2.2' ethylenedioxydiethyl dimethacrylate: This substance must not be classified as PBT or vPvB in accordance with the currently valid EU classification criteria.

Aliphatic urethane Acrylate: This substance must not be classified as PBT or vPvB in accordance with the currently valid EU classification criteria.

Phosphine oxide: No information available	
Section 13: Disposal Instructions	
Proper disposal/product: Disposal in accordance with regulatory requirements.	
Proper disposal/packaging: May be disposed of in accordance with local regulatory requirements.	
Ecology - waste materials: Avoid discharge into the environment	
Section 14: Transport Information (non-mandatory)	
UN number: none	
Proper UN shipping name: none	
Transport hazard classes: No dangerous goods pursuant to transportation regulations.	
Packaging group: none	
Environmental hazards: none	
Special precautions for transport: none	
Bulk transport in accordance with Annex II of the MARPOL Convention 73/79 pursuant to IBC Code: No	
Section 15: Regulatory Information (non-mandatory)	
EU regulations	
Information about Regulation (EC) No. 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register: irrelevant	
Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer: irrelevant	
Regulation (EC) No. 648/2004 on detergents: irrelevant	
Regulation (EC) No. 850/2004 [POP regulation]: irrelevant	
Regulation (EU) No. 649/2012 concerning the import and export of hazardous chemicals: irrelevant	
Restriction on use in accordance with REACH Annex XVII No.: irrelevant	
National regulations	
National regulations must also be observed.	
Instructions on employment restriction: No information is available.	
Major Accidents Ordinance: Not subject to the German Major Accidents Ordinance.	
Solvent Ordinance (31st Federal Immission Protection Ordinance [BlmSchV]): irrelevant	
Storage class: 10-13 Other flammable and non-flammable substances.	
Water hazard class (WHC): 1 slightly hazardous to water (WHC 1)	
Technical Instructions on Air Quality Control (TA-Luft): Not subject to the Technical Instructions on Air Quality Control.	
Other regulations, restrictions and prohibition ordinances: None	
Section 16: Other Information	
Text of H and P phrases (number and full text)	
H phrases	Text
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H361	Suspected of damaging fertility or the unborn child.
H411	Toxic to aquatic life with long lasting effects.
P phrases	Text
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash contaminated skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the Workplace.
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/containers in accordance with local regulations.
Training tips: None	

Recommended restriction(s) on use: No special measures are required.

Data sources: REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006.

Further information: REJECTION OF LIABILITY We have obtained the information in this data sheet from sources that we consider reliable. The accuracy of expressed or implied information cannot be guaranteed. The conditions or methods for handling, storage, use or disposal of the product are beyond our control and possibly also our knowledge. For these and other reasons, we accept no responsibility and expressly reject liability for any losses, damage or costs that may arise from handling, storage, use or disposal of the product or that may be associated therewith in any way. This Safety Data Sheet was created for this product and may only be used for this product. If the product is used as a component of another product, the information indicated in the data sheet may not apply.

This information is based on our current knowledge and should only describe the product with regard to health, safety and environmental conditions. It must therefore not be construed as a guarantee for any specific property of the product.