



# MATERIAL SAFETY DATA SHEET

## Section 1: Identification

**Product Name:** Ackuretta CURO Pro Splint

**Chemical Name/Synonyms:** Additive plastic

**Application:** Methacrylate-based resin 3D printing systems with 385 nm or 405 nm light sources for additive manufacturing of bite splints.

**Company:** Ackuretta Technologies Pvt Ltd

**Manufacturer:** MACK4D

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**MSDS Date of preparation:** 26th of June, 2023

## Section 2: Hazard(s) Identification

**Classification of substance or mixture** according to Regulation (EC) No. 1272/2008:

Skin irrit. Cat. 2 H315

Skin sens Cat. 1 H317

Eye irrit. Cat. 2 H319

STOT SE Cat. 3 H335

Aquatic Acute Cat. 1 H400

Aquatic Acute Cat. 1 H410

**Pictograms:**



**Signal Word(s):** hazard

**Hazard statements:**

**H315** Causes skin irritation.

**H317** May cause an allergic skin reaction.

**H319** Causes serious eye irritation.

**H333** May cause respiratory irritation

**H400** Very toxic to aquatic life  
**H410** Very toxic to aquatic life with long-lasting effects

**Precautionary statements:**

**P261** Avoid breathing dust/fume/gas/mist/vapors/spray

**P264** Wash hands thoroughly after handling.

**P270** Do not eat, drink or smoke when using.

**P273** Avoid release to the environment

**P280** Wear protective gloves/protective clothing/eye protection/face protection.

**P302+P352** IF ON SKIN: Wash with plenty of water.

**P312** Call a POISON CENTER / doctor if you feel unwell.

**P321** Specific treatment: (refer to Section 4).

**P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove any existing contact lenses if possible. Continue rinsing.

**P332+P313** If skin irritation occurs: Get medical advice/attention.

**P333+P313** If skin irritation occurs: Get medical advice/attention.

**P337+P313** If skin irritation or rash occurs: Get medical advice / attention.

**P391** Collect spillage.

**P403+P233** Keep in a well-ventilated place. Leave container tightly closed.

**P405** Store locked up.

**P501** Dispose of contents / container in accordance with local regulations.

**Other hazards:** NA

**Section 3: Composition/information on Ingredients**

This product is a mixture

Reagent	Percentage	EC No. /CAS No./ REACH Registration No.	Classification according Regulation (EC) No. 1272/2008	Hazard and category
Urethane Acrylate	<40	Company secret	Not Rated	
Methacrylic acid, monoester with propane1,2-dio	<8	Company secret	H317 H319	Skin Sens 1 Eye Irrit 2
Isobornyl acrylate	<25	Company secret	H315 H319 H317 H335 H400 H410	Skin Irrit. 2 Eye Irrit.. 2 Skin Sens. 1B STOT SE 3 Aquatic Acute 1 Aquatic Chronic 1
Polyethylene glycol 200 Dimethacrylate	<30	Company secret	Not Rated	
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	<2	Company secret	H317 H361 H411	Skin Sens 1B Rep 2 Aquatic Chronic 2

#### Section 4: First Aid Measures

**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.

**After inhalation:** Make sure that there is fresh air. If the product irritates the respiratory tract, consult a doctor immediately.

**After contact with skin:** Wash out and rinse with plenty of soap and water.

**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.

**After swallowing:** Never administer something orally to an unconscious person or someone who is experiencing cramps. Consult a doctor immediately. Do not induce vomiting.

**The most significant acute and delayed occurring symptoms and impact**

**Skin contact:** May cause an allergic skin reaction.

**Information about emergency medical aid or special treatment**

**Note for the physician:** Treat symptomatically.

#### Section 5. Fire-fighting procedures

##### Solvents

**Suitable solvents:** Water spray, foam, dry fire extinguisher or carbon dioxide.

**Unsuitable solvents:** Do not use a water jet as an extinguishing agent, as this will cause the fire to spread.

##### Particular hazards arising from substance or mixture

**Hazardous decomposition products:** Thermal decomposition or combustion products may contain the following substances: Carbon oxides.

##### Information for fire-fighting

**Safety precautions during fire-fighting:** No actions should be taken without appropriate training or which are associated with personal risk.

**Particular protective equipment for fire-fighters:** Wear self-contained breathing apparatuses (SCBA) and suitable protective clothing.

#### 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 1.2

## 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.

## Section 9: Physical and Chemical Properties

**Appearance:** Liquid

**Odor:** Specific

**Color:** Clear transparent

**Density:** 1.1 g/cm<sup>3</sup>

**Bulk density:** NA

**pH:** NA  
**Melting point/freezing point:** NA  
**Initial boiling point and boiling range:** NA  
**Flash point:** >120 oC  
**Flammability (solid, gas):** NA  
**Explosivity:** NA  
**Lower explosion limit:** NA  
**Upper explosion limit:** NA  
**Ignition temperature:** NA  
**Decomposition temperature:** NA  
**Oxidizing potential:** NA  
**Vapour pressure:** NA  
**Vapour density:** NA  
**Evaporation rate:** NA  
**Water solubility:** No  
**Fat solubility:** NA  
**Soluble in:**  
**Partition coefficient: octanol/water:** NA  
**Viscosity:** ca.700-1200 Pa s  
**Solvent separation test:** NA  
**Solvent content:** NA

#### 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

##### **Methacrylic acid, monoester with propane-1,2-diol (at 100%)**

Acute toxicity – oral LD50: >2000 mg/kg, oral, rat  
Acute toxicity – dermal LD50: >5000 mg/kg, dermal, rabbit  
Acute toxicity – inhalative LC50: No information available  
Caustic/irritant effect on the skin: Not irritating  
Severe eye damage/irritation: Moderately irritating  
Respiratory tract sensitization: No information available  
Skin sensitization: Sensitizing  
Germ cell mutagenicity - Gene mutation: negative. Chromosomal aberration: negative  
Carcinogenicity: Based on available data, the classification criteria are not met.  
Reproductive toxicity: Screening: NOAEL 1000 mg / kg body weight / day, oral, rat F1  
Developmental toxicity: NOAEL 1000 mg / kg body weight / day, oral, rat / NOAEL 0.5 mg / l, inhalation, rat

Specific target organ toxicity (repeated exposure): STOT - repeated exposure NOAEL 300 mg/kg KG/day, oral, rat

**Isobornyl acrylate (at 100%)**

Acute toxicity – oral LD50: 4350 mg/kg, oral, rat

Acute toxicity – dermal LD50: >3000 mg/kg, dermal, rat

Acute toxicity – inhalative LC50: No information is available.

Caustic/irritant effect on the skin: weakly irritating

Severe eye damage/irritation: weakly irritating

Respiratory tract sensitization: No information available

Skin sensitization: Sensitizing. Local lymph node test (LLNA) - mouse

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

Carcinogenicity: No information is available.

Reproductive toxicity - fertility: Screening: - NOAEL 1000 mg/kg/d, oral, rat F1

Reproductive toxicity - Development: Embryotoxicity: - NOAEL: 500 mg/kg KG/day, oral, rat

Specific target organ toxicity (repeated exposure): NOAEL 10 mg / kg bw / day, oral, rat NOAEL 0.075 mg / l inhalation, rat

**Polyethylene glycol 200 Dimethacrylate (at 100%)**

Acute toxicity – oral LD50: No information is available.

Estimated acute oral toxicity: No information is available.

Acute toxicity – dermal LD50: No information is available.

Acute toxicity – inhalative LC50: No information is available.

Caustic/irritant effect on the skin: No information is available.

Severe eye damage/irritation: No information is available.

Respiratory tract sensitization No information is available.

Skin sensitization: No information is available.

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

Carcinogenicity: No information is available.

Reproductive toxicity - fertility: No information is available.

Reproductive toxicity - Development: No information is available.

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

**Diphenyl(2,4,6-trimethylbenzoyl) phosphine oxide (at 100%)**

Acute toxicity – oral LD50 >5000 mg/kg rat

Acute toxicity – dermal LD50 <2000 mg/kg rat

Acute toxicity – inhalative LC50 No information is available.

Caustic/irritant effect on the skin 0.5 g / 24h dermal, rabbit, not irritating

Severe eye damage/irritation 0.056 g / 5d eye, rabbit, not irritating

Respiratory tract sensitization OECD Test 429 local lymph node test, dermal, mouse sensitizing

Skin sensitization -

Germ cell mutagenicity / genotoxicity - in vitro negativ

Carcinogenicity No evidence of carcinogenicity in animal experiments

**The Information below shows ingredients that are above the limit value considered relevant and are listed as toxic to reproduction:**

Reproductive toxicity

OECD Test No. 414: Study to examine the prenatal developmental toxicity, rat

Developmental toxicity: NOAL 150 mg / kg body weight / day

OECD Test No. 421: Screening Test for Reproductive / Developmental Toxicity, Rat

Reproductive toxicity: NOAL 60 mg / kg body weight / day  
OECD Test No. 421: Screening Test for Reproductive / Developmental Toxicity, Rat  
Developmental toxicity: NOAL 200 mg / kg body weight / day  
OECD Test No. 421: Screening Test for Reproductive / Developmental Toxicity, Rat  
Parental: NOAL 200 mg / kg body weight / day

#### European Union

Repr. 2

#### Reproductive toxicity - Development

Based on the available data, the criteria for classification are not met.

#### Specific target organ toxicity (repeated exposure)

OECD Test 408: 90 day tox study with repeated oral administration to rodents - oral, rat  
NOAL 100mg / kg body weight / day

#### Germ cell mutagenicity / genotoxicity - in vitro

negative

#### Carcinogenicity

No evidence of a carcinogenic effect

#### Reproductive toxicity - fertility

No evidence of reprotoxic properties.

#### Reproductive toxicity - Development

NOAEL 1000 mg/kg KG/Tag, oral, rat

#### Specific target organ toxicity (repeated exposure)

Silicosis or other product-specific properties of the respiratory tract were not observed when handling the product.

### **Section 12: Ecological Information (non-mandatory)**

#### **Toxicity**

##### **Methacrylic acid, monoester with propane-1,2-diol (at 100%)**

Acute toxicity - fish: LC<sub>50</sub>, 48 hours: 493 mg / l, *Leuciscus idus* (golden orfe)

Acute toxicity - invertebrate aquatic animals: EC<sub>50</sub>, 48 hours: > 143 mg / l, *Daphnia magna*

Acute toxicity - aquatic plants: NOEC, 72 hours: > 97.2 mg / l, *Pseudokirchneriella subcapitata*

Acute toxicity - microorganisms: NOEC, 21 days: 45.2 mg / l, *Daphnia magna*

##### **Isobornyl acrylate (at 100%)**

Acute toxicity - fish: LC<sub>50</sub>, 96 hours: 3.2mg / L mg / l, fish

Acute toxicity - invertebrate aquatic animals: EC<sub>50</sub>, 48 hours: 13mg / L mg / l, *Daphnia magna*

Acute toxicity - aquatic plants: NOEC, 96 hours: 0.31 mg / l, *Pseudokirchneriella subcapitata*

Acute toxicity - microorganisms: EC<sub>50</sub>, 3 hours: 100 mg / l, activated sludge

##### **2,2' ethylenedioxydiethyl dimethacrylate (at 100%)**

Acute toxicity - fish: Not available

Acute toxicity - invertebrate aquatic animals: Not available

Acute toxicity - aquatic plants: Not available

Acute toxicity - microorganisms: Not available

##### **Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (at 100%)**

Acute toxicity - fish: LC<sub>50</sub>, 48 hours: 6.53 mg/l, *Oryzias latipes*

Acute toxicity - invertebrate aquatic animals: EC<sub>50</sub>, 48 hours: 3,53 mg/l, *Daphnia magna*

Acute toxicity - aquatic plants: EC<sub>50</sub>, 72 hours: > 2,01 mg/l, *Pseudokirchneriella subcapitata*

Acute toxicity - aquatic plants: EC<sub>10</sub>, 72 hours: > 1,56 mg/l, *Pseudokirchneriella subcapitata*

Acute toxicity - microorganisms: No information is available.

#### **Persistence and degradability**

The product is not easily biodegradable.

#### **Bioaccumulation potential**

##### **Methacrylic acid, monoester with propane-1,2-diol (at 100%)**

Distribution coefficient: BFC: 3.2, calculation method

##### **Isobornyl acrylate (at 100%)**

Distribution coefficient: log Kow: 4.52

##### **Polyethylene glycol 200 Dimethacrylate (at 100%)**

Distribution coefficient: Not determined

Bioaccumulation potential: No bioaccumulation data are available.

##### **Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (at 100%)**

Distribution coefficient: Log Pow: 3,1

Bioconcentration Factor (BFC): 18-72

#### **Mobility on the ground**

##### **Methacrylic acid, monoester with propane-1,2-diol (at 100%)**

Adsorption / desorption coefficient: Not determined

##### **Isobornyl acrylate (at 100%)**

Adsorption / desorption coefficient: Not determined

##### **Polyethylene glycol 200 Dimethacrylate (at 100%)**

Mobility: No information is available.

Adsorption / desorption coefficient: No information available

##### **Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (at 100%)**

Henry constant 0 Pa m<sup>3</sup>/mol @ 25°C Absorption coefficient Log Koc = 784.8

#### **Results of PBT and vPvB assessment**

##### **Methacrylic acid, monoester with propane-1,2-diol (at 100%)**

According to the currently valid EU classification criteria, this substance is not classified as PBT or vPvB..

##### **Isobornyl acrylate (at 100%)**

According to the currently valid EU classification criteria, this substance is not classified as PBT or vPvB.

##### **Polyethylene glycol 200 Dimethacrylate (at 100%)**

No information available

##### **Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide (at 100%)**

According to the criteria of the REACH regulation, no PBT or vPvB substance.

### **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

**Chemical safety assessment:** A chemical safety assessment was carried out for this preparation. Chemical safety assessment were not carried out for substance in this mixture.

#### Section 16: Other Information

##### Text of H and R phrases (number and full text)

###### H phrases Text

**H315** Causes skin irritation.

**H317** May cause an allergic skin reaction.

**H319** Causes serious eye irritation.

**H333** May cause respiratory irritation

**H400** Very toxic to aquatic life

**H410** Very toxic to aquatic life with long lasting effects

###### P phrases

**P261** Avoid breathing dust/fume/gas/mist/vapors/spray

**P264** Wash hands thoroughly after handling.

**P270** Do not eat, drink or smoke when using.

**P273** Avoid release to the environment

**P280** Wear protective gloves/protective clothing/eye protection/face protection.

**P302+P352** IF ON SKIN: Wash with plenty of water.

**P312** Call a POISON CENTER / doctor if you feel unwell.

**P321** Specific treatment: (refer to Section 4).

**P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove any existing contact lenses if possible. Continue rinsing.

**P332+P313** If skin irritation occurs: Get medical advice/attention.  
**P333+P313** If skin irritation occurs: Get medical advice/attention.  
**P337+P313** If skin irritation or rash occurs: Get medical advice / attention.  
**P391** Collect spillage.  
**P403+P233** Keep in a well-ventilated place. Leave container tightly closed.  
**P405** Store locked up.  
**P501** Dispose of contents / container in accordance with local regulations.

**Training tips:** Only trained personnel should use this product.

**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.