

# Safety Data Sheet

## Section 1 Identification

**1.1 Trade name:** zSG Clear

**1.2 Application of the substance / the mixture:** Material based on photopolymer for 3D printers.

**1.3 Manufacturer/Supplier:**

UNIZ Technology LLC

9400 Activity Rd, Suite L&K,

San Diego, CA 92126, US

Tel.: +18588886823

**1.4 Emergency telephone number:**

Tel.: +18588886823c

## Section 2 Hazards Identification

**2.1 Classification of the substance or mixture:**

Skin corrosion/irritation, Hazard Category 2 – H315

Sensitization - Skin, hazard category 1 – H317

Serious eye damage/eye irritation, Hazard Category 2 – H319

Specific target organ toxicity – Single exposure, Hazard Category 3, Respiratory tract irritation  
–H335

Reproductive toxicity, Hazard Category 2 - H361f

Hazardous to the aquatic environment – Chronic Hazard, Category 3 – H412

**Warning H statements:**

H315 – Causes skin irritation.

H317 – May cause an allergic skin reaction.

H319 – Causes serious eye irritation.

H335 – May cause respiratory irritation.

H361f – Suspected of damaging fertility (causing atrophy of the testes).

H412 – Harmful to aquatic life with long lasting effects.

**2.2 GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

Hazard-determining components of labeling: GHS07

GHS07



**Signal word** Warning

**Warning H statements:**

H315 – Causes skin irritation.

H317 – May cause an allergic skin reaction.

H319 – Causes serious eye irritation.

H335 – May cause respiratory irritation.

H361f – Suspected of damaging fertility (causing atrophy of the testes).

H412 – Harmful to aquatic life with long lasting effects.

**Precautionary P statements:**

P201 – Obtain special instructions before use.

P202 – Do not handle until all safety precautions have been read and understood.

P261 – Avoid breathing dust/ fume/gas/mist/vapors/spray.

P273 – Avoid release to the environment.

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

P308 + P313 – IF exposed or concerned: Get medical advice/attention.

P302 + P352 – IF ON SKIN: Wash with plenty of soap and 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.

P304 + P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. P501 – Dispose of contents/container in accordance with local regulations.

**2.3 Potential Health Effects:**

Effects due to processing releases:

Irritating to eyes, respiratory system and skin. Prolonged or repeated exposure may cause: headache, drowsiness, nausea, weakness (severity of effects depends on extent of exposure).

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Other:

This product may release fume and/or vapor of variable composition depending on processing time and temperature. Possible cross sensitization with other acrylates and methacrylates.

## Section 3 Composition/Information on Ingredients

Chemical characterization: Mixtures

Components	CAS NO.	Conc. (%)
Acrylate monomer	-	18%-28%
Acrylate monomer	-	20%-45%
Acrylate oligomer	-	25%-25%
Acrylate oligomer		6%-15%
Photo initiator(s)	-	≤ 2%

\*Occupational exposure limits, if available, are listed in [Section 8](#).

## Section 4 First-Aid Measures

**4.1 Emergency overview:** This product is clear colored liquid with a light odor. This product may cause skin and eye irritation. The inhalation of high vapor concentration may cause a headache and nausea.

**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. 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.

**Eye contact:** Immediately flush with plenty of clean water (under eyelids) for at least 20 minutes. Hold eyelids apart to ensure flushing. Washing within one minute of contact is essential to achieve maximum effectiveness. Seek medical attention immediately. Do not apply oil or oily

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ointments unless ordered by a physician.

**Skin contact:** Remove contaminated clothing and rinse contact area thoroughly with soap and water. Particular attention should be paid to hair, nose, and ears, and other areas not easily cleaned. Wash clothing before reuse. If irritation develops, consult a physician.

**Ingestion:** If ingested, dilute with water by giving glasses of water or milk to the victim. Do not give anything by mouth if the victim is rapidly losing consciousness, is unconscious, or convulsing. Do not induce vomiting. If vomiting occurs naturally, keep airways clear. Get medical attention. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed.

#### **4.2 Most important symptoms/effects, acute and delayed**

**Inhalation:** May cause respiratory irritation.

**Eye contact:** Causes serious eye irritation.

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

**Ingestion:** No known significant effects or critical hazards.

#### **4.3 Over-exposure signs/symptoms**

##### **Inhalation**

Adverse symptoms may include the following:

respiratory tract irritation

coughing

reduced fetal weight

increase in fetal deaths

skeletal malformations

##### **Eye contact**

Adverse symptoms may include the following:

pain or irritation

watering

redness

##### **Skin contact**

Adverse symptoms may include the following:

irritation

redness

reduced fetal weight

increase in fetal deaths

skeletal malformations

### **Ingestion**

Adverse symptoms may include the following:

reduced fetal weight

increase in fetal deaths

skeletal malformations

## **Section 5 Fire-Fighting Measures**

### **5.1 Extinguishing media**

#### **Suitable extinguishing agents:**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use firefighting measures that suit the environment.

#### **For safety reasons unsuitable extinguishing agents:**

Water with full jet

### **5.2 Special hazards arising from the substance or mixture**

No further relevant information available.

**5.3 Special firefighting procedures:** Firefighters should wear full protection clothing and self-contained breathing apparatus (SCBA). Thoroughly decontaminate firefighting equipment including all firefighting apparel after the incident.

## **Section 6 Accidental Release Measures**

**6.1 Procedures of personal precautions:** Wear adequate personal protective clothing and equipment, as outlined in [Section 8](#).

**6.2 Environmental precautions:** Contain spill to prevent spread into drains, sewers, water supplies, or soil. Avoid release into the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### **6.3 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 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 spilled product.

Note: see Section 1 for emergency contact information and [Section 13](#) for waste disposal

## Section 7 Handling and Storage

**Handling precautions:** User Exposure — This product should be used in well-ventilated areas. Product may cause irritation. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash hands with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Launder contaminated clothing before reuse. Contaminated leather articles, including shoes, cannot be decontaminated and should be destroyed to prevent reuse. Solvents should never be used to clean hands or skin because they increase the penetration of the material into skin.

**Storage precautions:** Suitable — Store in a cool, dry place out of direct sunlight, in opaque or amber containers. Store the containers at 15 – 28 °C (59 – 82°F) suggested. Do not exceed 60 °C (140 °F) when in storage. Keep containers closed. Avoid ignition sources.

**Special requirements:** Do not heat containers with steam or electrical equipment. Heating this product above 150 °C (302 °F) in the presence of air may cause slow oxidative decomposition; above 260 °C (500 °F) polymerization may occur. Fumes and vapors from this thermal decomposition may be dangerous (nitrous vapors, carbon monoxide, carbon dioxide). Do not breathe fumes.

## Section 8 Exposure Controls & Personal Protection

### 8.1 Exposure limits

Component	Exposure limits
Acrylate monomer	None
Acrylate monomer	None
Acrylate oligomer	None
Acrylate oligomer	None
Photo initiator(s)	None

No occupational exposure limit values exist for the materials contained in this product.

### 8.2 Exposure controls

**Ventilation controls:** Ensure adequate ventilation.

**Respiratory protection:** Respirators are generally not needed under normal conditions of use. If this material is handled at elevated temperature, under mist forming conditions or in case of accidental release of large quantities of product use a full- face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Protective gloves:** Wear impervious gloves (nitrile or neoprene) for routine handling.

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**Eye and face protection:** Chemical splash goggles or a face shield is recommended during operations where splashing could occur.

**Skin protection:** Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible by wearing gloves, aprons, long pants, and long sleeved shirts.

**Other controls:** For operations where contact can occur a safety shower and eye wash facility should be available. Always use good personal hygiene and housekeeping practices. Wash hands thoroughly after handling.

**Environmental exposure controls:** Keep product from waterways and watersheds. This substance is not readily biodegradable and is dangerous for the environment. Avoid release into the environment.

## Section 9 Physical & Chemical Properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

<b>Information on basic physical and chemical properties</b>
<b>General Information</b>
<b>Appearance:</b>
Form: Fluid
Color: Clear
Odor: light
Odor threshold: Not determined.
<b>Change in condition</b>
Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.
<b>Flash point:</b> Undetermined
<b>Flammability (solid, gaseous):</b> Not applicable.
<b>Ignition temperature:</b> Undetermined
Decomposition temperature: <b>Not determined.</b>
Auto igniting: <b>Product is not self-igniting.</b>
Danger of explosion: <b>Product does not present an explosion hazard.</b>
Explosion limits:
Lower: <b>Not determined.</b>
Upper: <b>Not determined.</b>
Oxidizing properties: <b>Not determined.</b>
<b>Not applicable.</b>
<b>Vapor pressure:</b> Not determined.
<b>Density at 20 °C (68 °F):</b> 1.1 g/cm <sup>3</sup> (9.1795 lbs/gal)
<b>Relative densit:</b> Not determined.
<b>Vapor density:</b> Not determined.
<b>Evaporation rate:</b> Not determined.
<b>Solubility in / Miscibility with Water:</b> Not miscible or difficult to mix.
<b>Partition coefficient (n-octane/water):</b> Not determined.
<b>Viscosity:</b> 300-800 cps/25°C
<b>Solids content:</b> 100.00 %

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**Other information:** No further relevant information available.

## Section 10 Stability and Reactivity

**Stability:** Stable when stored in original container designed for use with light sensitive materials under 28 °C (82 °F) in dark, cool place.

**Conditions to avoid:** Storage > 60 °C (140 °F), exposure to light, loss of dissolved air, and contamination with incompatible materials.

**Incompatible materials to avoid:** Polymerization initiators, including peroxides, strong oxidizing agents, alcohols, copper, copper alloys, carbon steel, iron, rust, and strong bases.

**Hazardous decomposition products:** Hazardous decomposition products may include oxides of carbon, nitrogen and various hydrocarbon fragments.

**Hazardous polymerization:** Hazardous polymerization may occur. Uncontrolled polymerization may cause rapid evolution of heat and increase in pressure that could result in violent rupture of sealed storage vessels or containers.

## Section 11 Toxicological Information

Acrylate monomer	Acute Oral Toxicity (rat) LD50 > 588 mg/kg body weight (vendor literature)
Acrylate monomer	No data available
Acrylate oligomer	No data available
Acrylate oligomer	No data available
Photo initiator(s)	No data available

## Section 12 Ecological Information

12.1. Toxicity: Harmful to aquatic life with long lasting effects. Do not allow uncontrolled leakage of product into the environment. Product is not allowed to be discharged into the ground water or aquatic environment.

12.2. Persistence and degradability: Not readily degradable.

12.3. Bioaccumulation potential: No data available.

12.4. Mobility in soil: No data available.

12.5. Results of PBT and vPvB assessment: Not applicable.

12.6. Other adverse effects: Obtain approval of the relevant authorities before discharging into sewage treatment plants. Water contaminating class (D): 1 - slightly water contaminating

## Section 13 Disposal Considerations

Dispose of in accordance with governmental regulations (community, national or regional). Contact a licensed professional waste disposal service to dispose of this mixture. As with all foreign substances, do not allow to enter storm or sewer drainage systems. Avoid release into the environment.

**Contaminated Packaging:** Dispose of as unused product. Expose the open emptied container to light, then dispose.

## Section 14 Transport Information

UN-Number DOT, ADR, ADN, IMDG, IATA	Void
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Void
Transport hazard class(es) DOT, ADR, ADN, IMDG, IATA Class	Void
Packing group DOT, ADR, IMDG, IATA	Void
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable
UN "Model Regulation":	Void

## Section 15 Regulatory Information

The following provides a summary of the legal requirements.

Ingredient	EUROPEAN ECONOMIC COMMUNITY (EEC)					CANADA REGS		
	EPA* TSCA	CA Prop 65	EINECS	European Community Standards	Listed as dangerous chemicals per ESIS	EC 1272/2008	DSL	NDSL
Acrylate monomer	Yes	No	Yes	None	No	H315, H411	Yes	Yes
Acrylate monomer	Yes	No	Yes	None	No	H317,H402	Yes	Yes
Acrylate oligomer	Yes	No	Yes	None	No		Yes	Yes
Acrylate oligomer	Yes	No	Yes	None	No		Yes	Yes
Photo initiator(s)	Yes	No	Yes	None	No	H317, H413	Yes	

All the components present in this product at concentrations equal to or greater than 0.1% are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

Substance Preparation Classification:



Irritant

**FULL TEXT OF ANY R-PHRASES AND S-PHRASES:**

**Risk Phrases:**

R36/37/38 — Irritating to eyes, respiratory system and skin

R43 — May cause sensitization by skin contact

**Safety Phrases:**

S3 — Keep in a cool place

S7/9 — Keep container

S20 — When using do not eat or drink

S26 — In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S29 — Do not empty into drains

S36 — Wear suitable protective clothing

S37/39 — Wear suitable gloves and eye/face protection

**SARA 302:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986, (SARA) and 40 CFR 372 Part 372, this product does not contain chemicals subject to the reporting requirements under Section 313.

**California Proposition 65:** This product does not contain chemicals which are known to the state of California to cause cancer.

## Section 16 Other Information

HMIS (Hazardous Materials Information System) for secondary labelling:

HEALTH	2
FIRE HAZARD	1
REACTIVITY	1
PERSONAL PROTECTIVE EQUIPMENT	D

To the best of our knowledge the information contained herein is accurate. However, UNIZ 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. UNIZ assumes no responsibility for injury from the use of the product described herein.

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