

## GPS Safety Summary

**Substance Name:**  
**Cyclic trimethylol-propane formal acrylate**

### 1. General Statement

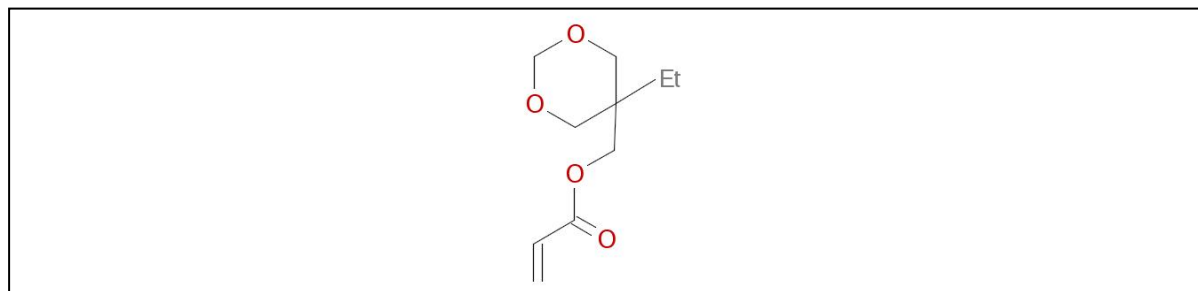
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Cyclic trimethylol-propane formal acrylate is a mono functional acrylic monomer which can be polymerised by free radicals. In particular, Cyclic trimethylol-propane formal acrylate is designed for use in ultra violet and electron beam curing applications.

### 2. Chemical Identity

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**Name:** Cyclic trimethylol-propane formal acrylate  
**Brand names:** SR531  
**Chemical name (IUPAC):** (5-ethyl-1,3-dioxan-5-yl)methyl acrylate  
**CAS number(s):** 66492-51-1  
**EC number (optional):** 266-380-7  
**Molecular formula (optional):** C<sub>10</sub>H<sub>16</sub>O<sub>4</sub>  
**Structure (optional):**



### 3. Use and applications

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Cyclic trimethylol-propane formal acrylate, is a mono functional acrylate monomer for use in UV and EB curing compositions. It is particularly suitable for PVC, plastics applications, laminated adhesives, wood coatings, inks, stereo-lithography and photopolymer printing plates.

### 4. Physical / Chemical properties

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Cyclic trimethylol-propane formal acrylate is a non flammable liquid with low volatility and moderate solubility in water.

Property	Value
Physical state	Liquid at 20°C and 1013.25 hPa
Form	
Particle size	Not applicable

Colour	Clear, colorless liquid
Odour	Characteristic
Molecular weight	200.23 g/mol
Density	1.0988 g/cm <sup>3</sup> at 20°C
Vapour pressure	0.006 hPa at 20°C
Freezing / boiling points	-28.7°C / >200°C at 1013 hPa.
Flammability (optional) H statement in case classified	Non flammable upon ignition.
Flash point	> 120°C
Self-ignition temperature	245°C at 1013 hPa
Explosive / oxidizing properties	Not expected based on structure
Water solubility	9300 mg/L at 20°C
Dissociation constant (pK <sub>a</sub> )	Not applicable
Octanol-water partition coefficient (Log K <sub>ow</sub> )	1.9 at 23°C

## 5. Health Effects

Cyclic trimethylol-propane formal acrylate is a moderate skin sensitizer and is irritating to the skin.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Does not cause acute toxicity after oral and dermal exposure. No data is available by inhalation.
Irritation / corrosion Skin / eye/ respiratory tract	Skin contact does cause irritation. Eye contact does not cause irritation.
Sensitisation	Does cause a moderate allergic skin reaction.
Toxicity after repeated exposure Oral / inhalation / dermal	Based on the available data, does cause irritation in the digestive system after repeated exposure in animal studies by oral administration. No data is available by inhalation or dermal route.
Genotoxicity / Mutagenicity	Based on the available data, not expected to cause genetic effects.
Carcinogenicity	No data is available.
Reproductive / Developmental Toxicology	Based on the available data, does not cause effects on the reproduction in animal studies.

## 6. Environmental Effects

Cyclic trimethylol-propane formal acrylate is inherently biodegradable. . It is assumed to be also biodegradable in soil and sediments.

Effect Assessment	Result
Aquatic Toxicity	Toxic to aquatic organisms.

Fate and behaviour	Result
Biodegradation	Inherently biodegradable
Bioaccumulation potential	No bioaccumulation in aquatic organisms expected
PBT / vPvB conclusion	As this substance is not considered to be bioaccumulative, it is not classified PBT. This substance is considered to be neither very persistent nor very bioaccumulative (vPvB).

## 7. Exposure

### 7.1 Human health

#### **Workplace exposure:**

Exposure can occur either in an Cyclic trimethylol-propane formal acrylate manufacturing facility or in the various industrial facilities that use the substance. Those working with it in industrial operations could be exposed during maintenance, sampling, testing, or other procedures. Each industrial facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. Safety showers and eye-wash stations should be accessible nearby. Workers should follow the safety measures recommended in the Extended Safety Data Sheet (eSDS).

### 7.2 Environment

#### **Environmental exposure:**

Cyclic trimethylol-propane formal acrylate is used in industrial settings and exposure of the environment is assessed for the manufacture, formulation and use. There are no direct consumer uses for Cyclic trimethylol-propane formal acrylate. Based on the results of risk assessment, all uses are adequately controlled with regard to the environment.

## 8. Risk Management recommendations

Human health measures	
Eye/Face protection	Safety glasses with side-shields.
Skin protection	Long sleeved clothing.
Hand protection	Gloves: nitrile rubber > 0,5 mm,(suitable gloves tested to EN374). Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility, etc) is noticed.
Respiratory protection	When using concentrated chemicals always make sure that there is adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipments.
Organizational measures	Ensure workers are duly trained to minimize exposure.
Engineering control	Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

### Environmental measures

Do not allow material to contaminate ground water system.  
All effluent releases that may include the substance must be directed to a (municipal) waste water treatment plant that removes the substance from the final releases to the receiving water.

## 9. Regulatory Information / Classification and Labelling



### 9.1 Regulatory Information

This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)

### 9.2 Classification and labelling

Under GHS, substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification	
According to REGULATION (EC) no 1272/2008, the pure substance is classified	
<ul style="list-style-type: none"><li>– Skin Irrit. 2</li><li>– Skin Sens. 1B</li><li>– Aquatic Chronic 2</li></ul>	
Signal word	
Warning	
Pictogram	
<ul style="list-style-type: none"><li>– GHS07: Exclamation mark</li></ul>	
<ul style="list-style-type: none"><li>– GHS09: Environment</li></ul>	
Hazard statement	
<ul style="list-style-type: none"><li>– <b>H315</b>: Causes skin irritation.</li><li>– <b>H317</b>: May cause an allergic skin reaction.</li><li>– <b>H411</b>: Toxic to aquatic life with long lasting effects.</li></ul>	
Alternative classification according to Globally Harmonized System (GHS)	
<ul style="list-style-type: none"><li>– <b>H315</b>: Causes skin irritation.</li><li>– <b>H317</b>: May cause an allergic skin reaction.</li><li>– <b>H401</b>: Toxic to aquatic life</li><li>– <b>H411</b>: Toxic to aquatic life with long lasting effects</li></ul>	

## 10. Contact Information within Company

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For further information on this substance or product safety summary in general, please contact:

- **ICCA portal where the GPS Safety Summary is posted:**  
<http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

## 11. Date of Issues / Revision

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- Date of issue: 2014/01/31
- Date of revision:

## 12. Disclaimer

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The information contained in this paper is intended as advice only and whilst the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user's own risk.

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