

GPS Safety Summary

Substance Name:

Di(trimethylolpropane) tetraacrylate

1. General Statement

Di(trimethylolpropane) tetraacrylate (Di-TMPTTA), is a multifunctional acrylic monomer which can be polymerised by free radicals. In particular, Di-TMPTTA is designed for use in ultra violet and electron beam curing applications.

2. Chemical Identity

Name:	Di(trimethylolpropane) tetraacrylate
Brand names:	SR355
Chemical name (IUPAC):	[2-[2,2-bis(prop-2-enoyloxymethyl)butoxymethyl]-2-(prop-2-enoyloxymethyl)butyl] prop-2-enoate
CAS number(s):	94108-97-1
ES number:	302-434-9
Molecular formula:	Not available (UVCB)
Structure:	Not available (UVCB)

3. Use and applications

Di(trimethylolpropane) tetraacrylate, is a tetrafunctional monomer offering fast cure response and a high crosslink density upon curing.

4. Physical / Chemical properties

Di-TMPTTA is a non flammable liquid with very low volatility. Di-TMPTTA is slightly soluble in water.

Property	Value
Physical state	Liquid at 20°C and 1013.25 hPa
Form	
Particle size	Not applicable
Colour	Colourless to pale yellow
Odour	Acrylic ester
Molecular weight	ca 412.0 – 1,362.0g/mol for the UVCB components
Density	1.109 g/cm ³ at 23°C
Vapour pressure	0.0000013 Pa at 20°C
Freezing / boiling points	-56°C / not determined (polymerisation)

Flammability	Non flammable upon ignition.
Flash point	>135°C at 1013 hPa
Self-ignition temperature	Not available
Explosive / oxidizing properties	Not expected based on structure
Water solubility	15 mg/L at 25°C
Dissociation constant (pK _a)	Not applicable
Octanol-water partition coefficient (Log K _{ow})	91% of the components have a Log K _{ow} ranged from 3.05 to 4.14 at 20°C

5. Health Effects

Di-TMPTTA is irritating to the eyes.

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 not cause skin irritation. Eye contact causes eye irritation.
Sensitisation	Not skin sensitizer.
Toxicity after repeated exposure Oral / inhalation / dermal	Does cause systemic toxicity in animal studies by oral route and local irritation in animal studies by dermal route. However no specific organ toxicity was observed after oral and dermal exposure. No data is available by inhalation.
Genotoxicity / Mutagenicity	Based on the limited 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 or on the foetal development in animal studies.

6. Environmental Effects

Di-TMPTTA is not readily biodegradable. However Di-TMPTTA is moderately hydrolysed at pH 7-9 with Half-life times at 25°C of 76 d and 80 h, respectively.

Effect Assessment	Result
Aquatic Toxicity	Toxic to aquatic organisms.
Fate and behaviour	Result
Biodegradation	Not readily biodegradable
Bioaccumulation potential	Low bioaccumulation potential
PBT / vPvB conclusion	This substance is neither bioaccumulative nor very bioaccumulative. Therefore, it can not be classified as PBT and vP/vB.

7. Exposure

7.1 Human health

Workplace exposure: Exposure can occur either in a Di-TMPTTA manufacturing facility or in the various industrial facilities that use Di-TMPTTA. Those working with Di-TMPTTA 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: Di-TMPTTA 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 Di-TMPTTA. 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. When required, 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 to 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">– Eye irrit Cat 2– Aquatic Chronic Cat 2	
Signal word	
Warning	
Pictogram	
– GHS07: Exclamation mark	
– GHS09: Environment	
Hazard statement	
<ul style="list-style-type: none">– H319: Causes serious eye irritation.– H411: Toxic to aquatic life with long lasting effects.	
Alternative classification according to Globally Harmonized System (GHS)	
<ul style="list-style-type: none">– H303: May be harmful if swallowed.– H319: Causes serious eye irritation.– H401: Toxic to aquatic life.– H411: Toxic to aquatic life with long lasting effects.	

10. Contact Information within Company

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

- Date of issue: 2014/09/30
- Date of revision:

12. Disclaimer

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