GPS Safety Summary

Substance Name:

2-Propenoic acid, reaction products with pentaerythritol

1. General Statement

2-Propenoic acid, reaction products with pentaerythritol is a multifunctional acrylic monomer which can be polymerised by free radicals. In particular, 2-Propenoic acid, reaction products with pentaerythritol is designed for use in ultra violet and electron beam curing applications.

2. Chemical Identity

Name:	**2-Propenoic acid, reaction products with pentaerythritol**
Brand names:	SR444D, SR295
Chemical name (IUPAC):	Esterification product of pentaerythritol and prop-2-enoic acid
CAS number(s):	1245638-61-2
EC number:	629-850-6
Molecular formula:	not available (UVCB)
Structure:	not available (UVCB)

3. Use and applications

2-Propenoic acid, reaction products with pentaerythritol, which contains a pendant hydroxyl group, has a low volatility, fast curing monomer for use in free radical polymerization.

4. Physical / Chemical properties

2-Propenoic acid, reaction products with pentaerythritol is a non flammable liquid, slightly soluble in water and with very low volatility.

Property	Value
Physical state	Liquid at 20°C and 1013.25 hPa
Form	
Particle size	Not applicable
Colour	Clear, pale
Odour	Acrylic
Molecular weight	ca 298.0 — 650.0 g/mol
Density	1.1853 - 1.1898 g/cm^3 at 20°C
Vapour pressure	< 1.33 x 10^{-8} Pa at 20°C
Freezing / boiling points	-48°C (glass transition)/ not determined
Flammability (optional)	Non flammable upon ignition.

Flash point	> 165°C (polymerisation)
Self-ignition temperature	Not determined
Explosive / oxidizing properties	Not expected based on structure
Water solubility	520 mg/L at 20°C
Dissociation constant (pK_a)	Not applicable
Octanol-water partition coefficient (Log K_{ow})	The Log K_{ow} of the main components are ranged from 1.45 to 2.71 at 20°C

5. Health Effects

2-Propenoic acid, reaction products with pentaerythritol is harmful after oral acute exposure, irritating for skin and eyes. It is a skin sensitizer.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Causes oral acute toxicity. Does not cause acute toxicity after dermal exposure. No data is available by inhalation.
Irritation / corrosion Skin / eye/ respiratory tract	Skin contact causes skin irritation. Eye contact causes serious eye damages. No data is available on respiratory tract irritation.
Sensitisation	Skin sensitizer.
Toxicity after repeated exposure Oral / inhalation / dermal	Based on the available data, no severe organ toxicity was observed after repeated exposure in animal studies by oral administration. No data is available by dermal route and inhalation.
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 study.

6. Environmental Effects

2-Propenoic acid, reaction products with pentaerythritol is not readily biodegradable. Hydrolysis of the main constituents occurs at environmentally relevant pH and temperatures, 2-Propenoic acid, reaction products with pentaerythritol is not expected to persist in water or sediment.

Effect Assessment	Result
Aquatic Toxicity	Toxic to aquatic organisms.
Fate and behaviour	**Result**
Biodegradation	Not readily biodegradable
Bioaccumulation potential	No bioaccumulation in aquatic organisms expected
PBT / vPvB conclusion	As this substance is not considered to be bioacumulative, 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 a 2-Propenoic acid, reaction products with pentaerythritol manufacturing facility or in the various industrial facilities that use the substance. Those working with the substance 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*:** 2-Propenoic acid, reaction products with pentaerythritol 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 unreacted substance. 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 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 – Acute Tox. Oral Cat 4 – Skin Irrit Cat 2 – Skin Sens. 1B – Eye Damage. Cat 1 – Aquatic Chronic Cat 2	
Signal word	
Danger	
Pictogram	
– GHS07: Exclamation mark	
– GHS05: Corrosion	
– GHS09: Environment	
Hazard statement	
– H302: Harmful if swallowed – H315: Causes skin irritation – H317: May cause an allergic skin reaction. – H318: Causes serious eye damage. – H411: Toxic to aquatic life with long lasting effects.	
Alternative classification according to Globally Harmonized System (GHS)	
– H302: Harmful if swallowed – H315: Causes skin irritation – H317: May cause an allergic skin reaction. – H318: Causes serious eye damage. – 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

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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