

Technical information

GPS Safety Summary

Sorbitan laurate

Substance name

Sorbitan monolaurate
 EC number 931-434-7


Substance overview

Sorbitan monolaurate belongs to a group of substances called Sorbitane esters which are widely used as surface active substances and raw materials for cosmetics.

The database for environmental effects, ecotoxicology and toxicology of Sorbitan monolaurate is extensive, allowing a robust evaluation of its hazard properties.

Because of the lack of hazards and if the risk management recommendations as mentioned below are observed the substance can be handled safely.

Chemical identity

Name	Sorbitan monolaurate
Chemical name (IUPAC)	Reaction products resulting from the esterification of Sorbitol with C8 - 18 (even) and C18 unsaturated fatty acids in the ratio of 1:1
EC number	931-434-7
Molecular formula	C ₁₈ H ₃₄ O ₆
Structure	 <p>The image shows the chemical structure of Sorbitan monolaurate. It consists of a sorbitane ring (a six-membered ring with one oxygen atom) and a laurate chain (an 18-carbon saturated fatty acid chain) attached to the ring via an ester linkage. The sorbitane ring has three hydroxyl groups attached to it.</p>

Uses and application

Sorbitan laurate is a common component in laundry products, cleaners, aerosol sprays, disinfectants, pest control sprays, polishes, water softeners, coatings, paints, thinners, paint removers and cosmetics.

The chemical structure of the Sorbitan laurate combines a good environmental profile, especially in terms of ready biodegradability and no harmful effects on aquatic life, with the structural features required for their manifold uses.

Physical/chemical properties

The substance poses no dangers by its physical or chemical properties.

Property	Value
Physical state	liquid
Density	1090 kg/m ³ at 20 °C
Melting / boiling point	-64 to 22 °C / > 300 °C, decomposition probable
Flammability	Non flammable
Explosive Properties	Non explosive
Self-ignition temperature	380 °C at 1013 hPa
Vapor pressure	< 0.001 Pa at 20 °C
Molecular weight	346.459 g/mol
Water solubility	< 3 mg/L at 20 °C, pH = 6.9
Flash point	214 °C (open cup)
Octanol-water partition coefficient	3.15 (calculated)

Health effects

Sorbitan laurate has to be considered as a substance that is omnipresent due to its numerous uses by the general public and its industrial uses.

- Consumer: The general public may come in contact with Sorbitan laurate contained in preparations like laundry products, cleaners, aerosol sprays, disinfectants, pest control sprays, polishes, water softeners, coatings, paints, thinners, paint removers and cosmetics.
- Worker: Exposure can occur either in a Sorbitan laurate manufacturing facility or in the various industrial facilities that use Sorbitan laurate. Those working with Sorbitan laurate in industrial operations could be exposed during maintenance, sampling, testing, or other procedures.

Health effects

Effect Assessment	Result
Acute toxicity (oral, dermal and inhalation)	Based on the available data not considered acutely toxic when swallowed or inhaled
Eye / Skin irritation	Based on the available data not considered to irritate skin or eye
Sensitization	Based on the available data not considered to cause allergic skin reaction
Toxicity after repeated exposure	Based on the available data not considered chronically toxic when swallowed or in contact with skin
Genotoxicity/mutagenicity	Based on the available data not considered to cause genetic defects
Carcinogenicity	There is no concern that the substance might cause cancer.
Toxicity for reproduction	Based on the available data not considered damaging fertility or the unborn child

The substance poses no dangers by its physical or chemical properties. Extensive testing showed no adverse health effects.

Environmental effects

Effect Assessment	Result
Aquatic toxicity	Based on available data not considered harmful to aquatic life
Fate and Behavior	Result
Biodegradation	Readily biodegradable
Bioaccumulation potential	Not bioaccumulative
PBT / vPvB conclusion	Neither considered to be PBT nor vPvB

Sorbitan laurate has to be considered as a substance that is omnipresent due to its numerous uses by the general public and its industrial uses. Release into the environment can happen at any time from production site to consumer home for example in laundry products or water softeners.

Due to the low vapour pressure the substance is not volatile and emission into air can be excluded.

Extensive testing showed that Sorbitan laurate poses no harmful effect on aquatic life and does not accumulate in the food chain.

Exposure

Human health

Based on the health assessment Sorbitan laurate does not give rise to any particular concern thus exposure is considered to be without risk. Nevertheless worker should conduct standard safety measures and refer to Safety Data Sheets for further detail. Consumer should always read product information before use and follow the label/use instructions.

Environment

Releases into the environment from different uses as mentioned above may occur. As demonstrated in the hazard assessment Sorbitan laurate is considered to be readily biodegradable and is therefore removed from waste water during waste water treatment processes. Remaining insignificant amounts reaching surface waters are rapidly removed by biological degradation processes. Hence exposure of aquatic organisms for a prolonged time period can be excluded. Even in the case of accidents or spills the substance does not pose a risk for the environment since it does not cause acute or chronic adverse effects in aquatic organisms up to its water solubility. Finally, the substance is not expected to accumulate in the food chain. Consequently, all identified uses of the substance are considered to be safe for the environment.

Risk management recommendations

Hazard assessment showed no adverse effects to the human health or the environment. As a consequence there is no need to further recommend specific operational conditions and further risk management measures for the manufacture and identified uses of the substance are not required.

Nevertheless workers should always refer to the corresponding Safety Data Sheet before handling any substance.

State agency review

Sorbitan laurate was registered in the European Union in 2010 in accordance with the REACH regulation.

Regulatory information/classification and labelling

Chemical substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the Safety Data Sheets (SDS). With the GHS (Global Harmonized System) hazard communication has been standardized worldwide so that the intended audience (workers in production, emergency responders and consumers) can better understand the hazards of the chemicals in use. In the EU, the GHS principles have been laid down in the Regulation (EU) No. 1272/2008 (CLP).

According to this regulation, Sorbitan laurate is **not classified and labeled** for physical-chemical properties, for health effects and for the environment.

The information provided in this GPS summary is correct to the best of our knowledge, information and belief at the date of its publication. It is intended to give general information about the chemical addressed but not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

The information herein is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event we will be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information herein or the product to which that information refers.

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Industry use, production and formulation

Acute toxicity	harmful effects after a single exposure
Biodegradable	breakdown of materials by a physiological environment
Bioaccumulation	accumulation of substances in the environment
Carcinogenicity	effects causing cancer
Chronic toxicity	harmful effects after repeated exposures
GHS	Global Harmonized System on Classification and Labeling
Mutagenicity	effects that change genes
PBT	Persistent Bioaccumulative Toxic
Reprotoxicity	teratogenicity, embryotoxicity and harmful effects on fertility
Sensitizing	allergenic
Teratogenic	effects on foetal morphology
vPvB	very Persistent very Bioaccumulative

Contact information within company

Email address productsafety.goldschmidt@evonik.com