

Safety Summary

Glyceryl mono fatty acid esters

The document of the safety summary provides usage of chemical substances and safety information to the general public. The safety summary is NOT intended to be an alternative document of Safety Data Sheet which is described from the recommendable detailed safety measures for each use. The safety summary is NOT intended to be an alternate document of the instructions for use nor the warning of consumer products including this substance. The contents of this summary are based on the laws, documents, information, and data available at present, without any warranty.

1. Chemical Identity

Category Name	Glyceryl mono fatty acid esters
Substance Name	Glyceryl fatty acid ester (C8, 10, 18, 18:1, 22)
CAS Number	26402-26-6, 26402-22-2, 31566-31-1, 123-94-4, 25496-72-4, 111-03-5, 30233-64-8

2. Product Uses and Benefits

Glyceryl mono fatty acid esters are nonionic surfactants produced by dehydration-condensation of glycerin and fatty acids. It is widely used in cosmetics for stabilizing, emulsifying, and moisturizing, and are also used as an emulsifier in foods.

For the industrial use, Glyceryl mono fatty acid esters are used as plastic additives, and lubricants and others.

3. Physical/Chemical Properties

The physicochemical properties of Glyceryl monocaprylate and Glyceryl monostearate as representative structures of Glyceryl mono fatty acid esters were calculated using the U.S. Environmental Protection Agency's computer software EPI suite 4.11 below.

Physicochemical properties of Glyceryl mono fatty acid esters

Property	Representative structure	
	Glyceryl monocaprylate (C8)	Glyceryl monostearate (C18)
Molecular weight	218.3	358.57
Boiling point (°C)	331.72	448.36
Melting point (°C)	84.79	166.17
Vapor pressure (Pa) 25°C	3.11×10^{-4}	1.70×10^{-7}
Water solubility (mg/L)	1229	1.23×10^{-2}
Octanol/water partition coefficient (Log Kow)	1.71	6.62
Soil adsorption coefficient (Log Koc)	10 (MCI) * 10 (Kow)	1066 (MCI) 4993 (Kow)

* MCI: Molecular Connectivity Index

4. Human Health Safety Assessment

Consumer: There is no exposure to hazardous concentration levels of glycerol mono fatty acid esters.

Worker: Based on available data, short-term and repeated exposures from working with Glyceryl mono fatty acid esters do not cause toxic effects.

Effect Assessment	Result
Acute Toxicity oral/ dermal	No acute toxicity after oral/ dermal exposure in practical use The substance does not cause damage to any organs following single exposure
Irritation/Corrosion skin/ eye	Based on the available data, unlikely to cause irritation to skin/eye
Sensitization	Based on the available data, unlikely to cause allergic skin reaction
Toxicity after repeated exposure	Unlikely to cause any toxic effects through prolonged or repeated oral exposure in practical use
Mutagenicity	Based on the available data, unlikely to cause genetic defects
Carcinogenicity	Based on the available data, unlikely to cause cancer
Toxicity for reproduction	Based on the available data, unlikely to be damaging to fertility or the unborn child

5. Environmental Safety Assessment

The test results with fish, aquatic invertebrates and algae suggest that Glyceryl mono fatty acid esters do not cause a toxicity for aquatic organism. Glyceryl mono fatty acid esters are readily biodegradable. Glyceryl mono fatty acid esters do not bioaccumulate in the food chain.

Effect Assessment	Result
Aquatic Toxicity	Suggests not to cause toxicity for aquatic organism.
Biodegradation	Readily biodegradable
PBT/ vPvB conclusion	Not persistent in the environment, not bioaccumulating in organisms and not toxic nor very persistent and very bioaccumulating

6. Exposure

- **Consumer**

The consumer can come into contact with the substance in use of cosmetics etc., but the concentration of Glyceryl mono fatty acid esters in use is below the level which would give rise harmful effects of concern. When it's used as the recommended use, consumer should always read product information before use and follow the label/ use instructions.

- **Worker**

The exposure can occur either in Glyceryl mono fatty acid esters manufacturing facilities or in the various industrial facilities when Monoglycerides is used. Those workers in industrial operations during maintenance, sampling, testing, or other procedures could be exposed with Glyceryl mono fatty acid esters. Only qualified and trained workers handle the undiluted substance. The manufacturing facilities offer thorough training program for employees and appropriate work processes, as well as safety equipment (goggles and gloves) in place to prevent an unnecessary exposure. Safety showers and eye-wash stations are accessible nearby. Workers are required to be trained in accordance with the safety measures in the Safety Data Sheet.

- **Environment**

Since this substance is used extensively, it is discharged to waste water treatment plants from industrial sites such as manufacturing, preparation, handling, storage and use of the substance as well as from consumer households. However, the substance is readily biodegradable, so that it is removed efficiently in waste water treatment plants. The substance is biologically degraded in the surface water and is rapidly removed even if it is remained slightly in the waste water. Hence, the chronic exposure to aquatic organisms of the substance is unlikely to occur. Furthermore, the substance does not accumulate in the food chain, so that there is no concern of human exposure through environmental pathway.

7. Risk management recommendations

Adequate ventilation should be provided when Glyceryl mono fatty acid esters are used in manufacturing facilities or in the various industrial facilities. Always use appropriate chemical-resistant gloves to protect your hands and skin and always wear eye protection equipment. Wash hands and skin after contact with the substance. Do not eat, drink or smoke where the substance is handled, processed or stored. If this substance gets on your clothing, take off the contaminated clothes. When the substance attaches to skin (or hair), wash with a large amount of water and soap. When it causes your skin irritation, seek medical advice/attention. If the substance gets into your eyes, rinse your eyes thoroughly for several minutes. If you wear contact lenses, and you can take it off easily, take it off and continue to rinse your eyes. If eye irritation persists, get medical advice/attention.

Waste water containing the substance must be passed the waste water treatment plants in order to remove the substance. No specific measures are needed, because it is not expected to be released into the air.

8. Regulatory Information/Classification and Labeling

Under GHS classification, chemical substances are classified in hazards for physical properties, human health and environment. The hazard information for industrial products is transmitted via specific labels and Safety Data Sheet. GHS offers the standardization for hazard communication. The subjects who could be assumed to be exposed to the substance, workers, consumers, transport workers, and emergency responders, can better understand the hazards of the chemicals in use through the transmission.

Labeling according to UN GHS

UN GHS is the basis for country specific GHS labeling.

Glyceryl mono fatty acid esters are not assigned to GHS classification.

Classification and labelling information

none

Hazard Statements:

none

Signal Word

none

The laws of manufacturing, sale, transport, use and disposal are different among countries or areas. Details are referred to Safety Data Sheet provided by the supplier.

9. Conclusion

Glyceryl mono fatty acid esters are not toxic to aquatic organisms. Based on the PBT/vPvB assessment, this substance does not meet the criteria for classification as a PBT or vPvB. It is also not considered to be toxic due to short term or repeated exposure. However, workers should follow standard safety measures and refer to the safety data sheet. Since consumers are only exposed to the substance in diluted form and the concentrations in consumer products are below levels of concern for human health, the risk in use is considered low.

10. Contact

For further information on this substance or Safety Summaries in general, please contact us.

Name	Kao Corporation
URL	https://ssl.kao.com/en/chemical/

11. Glossary

Acute Toxicity	Adverse effects that result from a single exposure
Sensitization	Inducibility of allergy
Genotoxicity	Effects to induce gene mutations
Carcinogenicity	Action influence to cause a cancer
Toxicity for Reproduction	Adverse effects that result from repeated exposure
Biodegradation	Biological degradation of a substance in environments
PBT (Persistent, Bioaccumulative and Toxic)	Substances that are environmentally persistent, bioaccumulative, and toxic
vPvB (Very Persistent and Very Bioaccumulative)	Substances with high persistence in the environment and high accumulation in ecology
GHS	Globally Harmonized System of Classification and Labelling of Chemicals

12. Date of Issue

November 4, 2025