

Fatty acid isopropyl ester

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	Fatty acid isopropyl ester
Substance Name	Isopropyl myristate, Isopropyl palmitate
CAS Number	110-27-0, 142-91-6

2. Product Uses and Benefits

Fatty acid isopropyl ester is oily base agent. Fatty acid isopropyl ester widely used in cosmetics and quasi-drugs such as creams and milky lotions because of its emollient effect. For industrial use, Fatty acid isopropyl ester is used as plastic additives, paint additives, textile oils and others.

3. Physical/Chemical Properties

Physicochemical properties of isopropyl myristate and isopropyl palmitate, representative structures of Fatty acid isopropyl ester, were calculated using the US Environmental Protection Agency's EPI Suite 4.11 computer software. In addition, bibliographic information from PubChem is provided below.

Physicochemical properties of Fatty acid isopropyl ester

Property	Representative structure	
	isopropyl myristate	isopropyl palmitate
Molecular weight	270.5	298.5
Melting point (°C)	3.0 ¹⁾	13.5 ¹⁾
Boiling point (°C)	315 ¹⁾	160 ¹⁾
Vapor pressure (Pa) 25°C	1.25×10^{-2} ¹⁾	7.45×10^{-3} ¹⁾
Water solubility (mg/L)	2.44×10^{-2} ¹⁾	2.51×10^{-2} ¹⁾
Octanol/water partition coefficient (Log Kow)	7.17 ¹⁾	8.16 ¹⁾
Soil adsorption coefficient (Log Koc)	12020 ²⁾	39930 ²⁾

- 1) PubChem <https://pubchem.ncbi.nlm.nih.gov/>
 2) EPI suite 4.11 (MPBPVP, WATERNT, KOWWIN, KOCWIN)

4. Human Health Safety Assessment

Consumer: The exposure to Fatty acid isopropyl ester is at safe levels.

Worker: The short-term and repeated exposure of Fatty acid isopropyl ester does not cause any toxic effects.

Effect Assessment	Result
Acute Toxicity oral/ dermal	Based on the available data, no acute toxicity after oral/ dermal exposure in practical use The substance does not cause damage to any organs following single exposure
Irritation skin/ eye	Based on the available data, unlikely to cause irritation/corrosivity to skin or eyes
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
Genotoxicity	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 Fatty acid isopropyl ester is not to cause toxicity for aquatic organism. Fatty acid isopropyl ester is readily biodegradable and do not remain in the environment. It is not concentrated in the food chain, and its impact in the actual environment is considered to be small.

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 Fatty acid isopropyl ester 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 Fatty acid isopropyl ester manufacturing facilities or in the various industrial facilities when Fatty acid isopropyl ester is used. Those workers in industrial operations during maintenance, sampling, testing, or other procedures could be exposed with Fatty acid isopropyl ester. 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 present 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 wastewater treatment plants. The substance is biologically degraded in the surface water and is rapidly removed even if it is remained slightly in the wastewater. Hence, the chronic exposure to aquatic organisms of the substance is unlikely to occur. Furthermore, the substance dose not accumulate in the food chain, so that there is no concern of human exposure through environmental pathway.

7. Risk management recommendations for industrial use

When you use the substance, make sure to be measured the adequate ventilation. Always use appropriate chemical-resistant gloves to protect your hands and skin and always wear eye protection equipment. Do not eat, drink, or smoke where the substance is handled, processed or stored. Wash hands and skin after contact with the substance. When the substance attaches to skin (or hair), take off the contaminated clothes. Wash with a large amount of water and soap. When it causes your skin irritation, consult doctor (medical diagnosis/therapy). If the substance gets into your eyes, rinse your eyes thoroughly for several minutes. If you wear contact lens, and you can take it off easily, take it off and continue to rinse your eyes. Contact to a doctor immediately.

Wastewater containing the substance must be passed the wastewater treatment plants in order to remove the substance. For air emission, no specific measures are needed because it is not expected to be released into the air.

8. Regulatory Information/Classification and Labelling

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.

Fatty acid isopropyl ester is not assigned any GHS classification.

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

Fatty acid isopropyl ester is not to cause toxicity for aquatic organism. The risk to environment organisms is negligible due to the rapid degradation of Fatty acid isopropyl ester. In the PBT/vPvB assessments for Fatty acid isopropyl ester, the substance is not applicable to PBT/vPvB. Although Fatty acid isopropyl ester is not considered to exhibit toxicity due to short-term and repeated exposure, workers need to refer to Safety Data Sheet according to standard safety measures. Consumers will usually not come into contact with the substance bulk and the substance is used diluted in consumer products, therefore, it is considered that Fatty acid isopropyl ester give rise no hazardous effects to human health.

10. Contact

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

Name	Kao Corporation
URL	https://chemical.kao.com/global/

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 for teratogenicity, embryotoxicity, and reproductivity
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

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