Kao Corporation

Enriching lives,
in harmony with nature.

Sodium alkyl ether carboxylate

The document of the safety summary provides the safety information of the chemical substance 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	Sodium alkyl ether carboxylate
Substance Name	Sodium polyoxyethylene alkyl(C=12～14) ether carboxylate
CAS Number	33939-64-9、50546-32-2

2. Product Uses and Benefits

Sodium alkyl ether carboxylate (EC) is an anionic surfactant. EC containing consumer products are widely used as body soaps, facial cleanser, shampoos, hand soaps and others.
There is no information on its industrial use

3. Physical/Chemical Properties

As the representative structure of EC, the physical and chemical properties of C12 EO2 and C12 EO5 with the numbers of carbon of the alkyl group of 12 and with numbers of moles of ethylene oxide (EO) of 2 and 5, were calculated using computer software EPI suite 4.1 of the U.S. Environmental Protection Agency as shown below.

Physical and chemical properties of EC (C12)

Property	Numbers of EO	
	2	5
Molecular weight	354.47	486.63
Boiling point (℃)	614.17	719.94
Melting point (℃)	265.93	315.34
Vapor pressure (Pa) 25℃	9.54×10^{-12}	3.53×10^{-15}
Water solubility (mg/L)	2848	2153
Octanol/water partition coefficient (Log Kow)	0.36	-0.46
Soil adsorption coefficient (LogKoc)	2.24	1.97

4. Human Health Safety Assessment

Consumer: The exposure to EC is at safe levels.
Worker: The repeated exposure of EC does not cause any toxic effects

Effect Assessment	Result
Acute Toxicity oral/ dermal	No acute toxicity effect after oral/ dermal exposure in practical use The substance does not cause damage to any organs following single exposure
Irritation skin/ eye	Undiluted substance causes severe skin burns and eye damage
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 EC could cause toxicity for aquatic organism and toxic to aquatic life with long lasting effects. However, EC is unlikely to persist in the environment because of the readily biodegradation. EC does not bioaccumulate in the food chain.

Effect Assessment	Result
Aquatic Toxicity	Based on the available data, likely to cause toxicity for aquatic organism and harmful to aquatic life with long lasting effects
Biodegradation	Readily biodegradable
PBT/ vPvB conclusion*	Not persistent in the environment, not bioaccumulating in organisms and not toxic nor very persistent and very bioaccumulating

*PBT=Persistent, Bioaccumulative and Toxic
vPvB=Very Persistent and Very Bioaccumulative

6. Exposure

- **Consumer**

The consumer can come into contact with the substance in use of the washing agent, but the concentration of EC 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 EC manufacturing facilities or in the various industrial facilities when EC is used. Those workers in industrial operations during maintenance, sampling, testing, or other procedures could be exposed with EC. 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 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 dose not accumulate in the food chain, so that there is no concern of human exposure through environmental pathway.

7. Risk management recommendations

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 amounts of water and soap. Contact to a doctor immediately. 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.
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 are 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.

EC may be assigned to following GHS classification.

Classification and labelling information

Skin Irrit. 1

Eye Dam. 1

Aquatic Acute 2

Aquatic Chronic 3

Hazard Statements:

H314: Causes severe skin burns and eye damage

H401: Toxic to aquatic life

H412: Harmful to aquatic life with long lasting effects

Signal Word

Danger

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

Though EC is suggested to cause toxicity to aquatic organisms, and harmful to aquatic life with long lasting effects, the risk to environment organisms is negligible due to the rapid degradation of EC. In the PBT/vPvB assessments for EC, the substance is not applicable to

PBT/vPvB. Contact with the undiluted EC may cause severe skin burns and eye damage. When handling the substance, workers should follow the standard safety measures and refer to the Safety Data Sheet. Consumers will usually not come into contact with the substance bulk and the substance is used diluted products, therefore, it is considered that EC gives 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://ssl.kao.com/en/chemical/

11. Glossary

Acute Toxicity	Adverse effects that result from a single exposure
Biodegradation	Biological degradation of a substance in environments
Bioaccumulation	Accumulation of substances in environments
Carcinogenicity	Action influence to cause a cancer
Toxicity after repeated exposure	Adverse effects that result from repeated exposure
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
Hazard	Hazardous property for human health or environments
Mutagenicity	Effects to induce gene mutations
Toxicity for reproduction	Adverse effects for teratogenicity, embryotoxicity, and reproductivity
Sensitization	Inducibility of allergy

12. Date of Issue

May 11, 2017