

GLOBAL PRODUCT STRATEGY SAFETY SUMMARY

RHEODOL AO-10V

This document is a high-level summary provides usage of chemical substances and safety information to the general public. It is not intended to replace the Safety Data Sheet, which is available from suppliers and should be referred to for full details of recommended safety procedures for each type of use. It is not intended to replace or supersede manufacturer's instructions and warnings for their consumer products containing this substance.

1. Substance Identity

Brand Name: RHEODOL AO-10V

Chemical Name: Sorbitan monooleate

CAS Number: 1338-43-8

2. Uses and Applications

RHEODOL AO-10V is a nonionic surfactant. It is used as an emulsifier for industrial use.

3. Physical/Chemical Properties

RHEODOL AO-10V has no identified physicochemical hazards.

| Property | Value |
|----------------|---|
| Physical state | Viscous Liquid |
| Colour | Yellow |
| Odour | Characteristic |
| pH | 8.9 (5% suspension) |
| Density | 0.995 g/mL (20°C)(68°F) 0.980 g/mL (40°C)(104°F) 0.968 g/mL (60°C)(140°F) |

| | |
|--|---|
| Freezing point | -20 °C(-4°F) |
| Boiling point | >40°C(>104°F) |
| Flash point | 270°C(518°F) (Cleveland open cup) |
| Flammability | No information available |
| Explosive properties | No information available |
| Self – ignition temperature | No information available |
| Vapour pressure | No information available |
| Water solubility | Insoluble |
| Octanol-water partition coefficient (log K _{ow}) | No information available |
| Viscosity | 1,930 mPa·s (20°C) (68°F) 417 mPa·s (40°C) (104°F) 145 mPa·s (60°C) (140°F) |

4. Human Health Safety Assessment

The Short-term and repeated exposure of RHEODOL AO-10V does not cause any 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 skin/ eye | Based on the available data, unlikely to cause skin/eye irritation. |
| 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 RHEODOL AO-10V is not to cause toxicity for aquatic organism. RHEODOL AO-10V is unlikely to persist in the environment because of showing the readily biodegradation. RHEODOL AO-10V does 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

RHEODOL AO-10V is used mainly as an emulsifier for industrial use. It is considered that exposure to consumers hardly occurs.

Worker

The exposure can occur either in RHEODOL AO-10V manufacturing facilities or in the various industrial facilities when RHEODOL AO-10V is used. Those workers in industrial operations during maintenance, sampling, testing, or other procedures could be exposed with RHEODOL AO-10V. 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

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. 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. When it causes your skin irritation or eye irritation, consult doctor (medical diagnosis/therapy).

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 Labelling

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.

Classification and Labeling Information

RHEODOL AO-10V is not classified as a substance that has a harmful effect on humans or the environment.

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

10. Contact information within company

For further information on this substance or product safety summaries in general, please contact:

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|------------------|--|
| Name | Kao Corporation, Global Chemical Business |
| Telephone number | +81-3-5630-7700 |
| Fax number | +81-3-5630-7889 |
| E-mail address | chemical@kao.co.jp |

Additional information can be found at a chemical risk assessment support portal provided by the Japan Chemical Industry Associations, found at <https://www.jcia-bigdr.jp/jcia-bigdr/en/top>.

11. Glossary

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|---|--|
| 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 |
| Hazard | Hazardous property for human health or environments |

12. Date of issue

December 10, 2021