

Sodium alkanoyloxybenzene sulfonate

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 alkanoyloxybenzene sulfonate |
| Substance Name | Sodium 4-dodecanoyloxybenzene sulfonate |
| CAS Number | 88380-00-1 |

2. Product Uses and Benefits

Sodium alkanoyloxybenzene sulfonate (DOBS-Na) is a bleaching activator. It is widely used as consumer products contained in laundry detergent and laundry bleacher. DOBS-Na reacts with hydrogen peroxide immediately within laundry sink, reveals a bleaching action, and generates Sodium 4-Hydroxybenzenesulfonate (HBS-Na) and Lauric acid. Since Lauric acid existed naturally, DOBS-Na and HBS-Na were set as the target of risk assessment.

DOBS-Na is not used on an industrial use.

3. Physical/Chemical Properties

The physical and chemical properties of DOBS-Na and HBS-Na were calculated using computer software EPI suite 4.1 of the U.S. Environmental Protection Agency as shown below.

Physical and chemical properties of DOBS-Na and HBS-Na

| Property | DOBS-Na | HBS-Na |
|---|-----------------------|-----------------------|
| Molecular weight | 378.46 | 196.15 |
| Boiling point (°C) | 686.8 | 556.2 |
| Melting point (°C) | 299.9 | 238.9 |
| Vapor pressure (Pa) 25°C | 4.3×10^{-14} | 6.5×10^{-11} |
| Water solubility (mg/L) | 195.1 | 1.0×10^6 |
| Octanol/water partition coefficient (Log Kow) | 1.56 | -3.43 |
| Soil adsorption coefficient (LogKoc) | 3.26 | 1.11 |

4. Human Health Safety Assessment

Consumer: The exposure to DOBS-Na and HBS-Na are at safe levels.

Worker: The repeated exposure of DOBS-Na does not cause any toxic effects

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

5. Environmental Safety Assessment

The test results with fish, aquatic invertebrates and algae suggest that DOBS-Na and HBS-Na unlikely to cause a toxicity for aquatic organism. And, DOBS-Na and HBS-Na are unlikely to persist in the environment because of the readily biodegradation. DOBS-Na and HBS-Na does not bioaccumulate in the food chain.

| Effect Assessment | Result |
|-----------------------|--|
| Aquatic Toxicity | Unlikely to cause a 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 |

*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 laundry detergent and laundry bleacher, but the concentration of DOBS-Na and HBS-Na 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 DOBS-Na manufacturing facilities or in the various industrial facilities when DOBS-Na is used. Those workers in industrial operations during maintenance, sampling, testing, or other procedures could be exposed with DOBS-Na. 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 these substances are 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 substances are readily biodegradable, so that it is removed efficiently in waste water treatment plants. These substances are biologically degraded in the surface water and are rapidly removed even if it is remained slightly in the waste water. Hence, the chronic exposure to aquatic organisms of these substances are unlikely to occur. Furthermore, these substances do 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. 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.

Waste water containing these substances must be passed the waste water treatment plants in order to remove these substances. 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.

DOBS-Na is assigned to following GHS classification.



Classification and labelling information

Eye Dam. 1

Hazard Statements:

H318: Causes serious eye damage

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 DOBS-Na and HBS-Na are suggested unlikely to cause a toxicity to aquatic organism, the risk to environment organisms is negligible due to the rapid degradation of DOBS-Na and HBS-Na. In the PBT/vPvB assessments for DOBS-Na and HBS-Na, the substances are not applicable to PBT/vPvB. Contact with the undiluted DOBS-Na may cause serious damage to the eyes. 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 substances are used diluted in consumer

products, therefore, it is considered that DOBS-Na and HBS-Na 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://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 1, 2016