

GLOBAL PRODUCT STRATEGY SAFETY SUMMARY

EMULGEN 106

This document is a high-level summary intended to provide the general public with an overview of product safety for this substance. 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: EMULGEN 106

Chemical Name: Polyoxyethylene (5) lauryl ether

CAS Number: 9002-92-0

2. Uses and Applications

EMULGEN 106 is a non-ionic surfactant. It is used as an emulsifier for cosmetic products and others.

For the industrial use, EMULGEN 106 is mainly used as adjuster of emulsion polymerization, emulsifier, an agent for textile products, an agent for metalworking fluids, and others.

3. Physical/Chemical Properties

EMULGEN 106 has no identified physicochemical hazards.

| Property | Value |
|----------------|---|
| Physical state | Liquid |
| Colour | Colourless to pale yellow |
| Odour | Slightly characteristic odour |
| pH | 5 (5% solution) |
| Density | 0.961 g/mL (20 °C), 0.947 g/mL (40 °C), 0.933 g/mL (60 °C) |
| Melting point | 6 °C |

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|--|---|
| Boiling point | No information available |
| Flash point | 191 °C (CLEVELAND open cup method) |
| Flammability | No information available |
| Explosive properties | No information available |
| Self – ignition temperature | No information available |
| Vapour pressure | No information available |
| Water solubility | Emulsifiable |
| Octanol-water partition coefficient (log K _{ow}) | No information available |
| Viscosity | 38 mPa·s (20 °C), 21 mPa·s (40 °C), 13 mPa·s (60 °C) |

4. Human Health Safety Assessment

Consumer: The exposure to EMULGEN 106 is at safe levels.

Worker: The repeated exposure of EMULGEN 106 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 | Undiluted substance causes skin irritation Causes serious 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 EMULGEN 106 could cause a strong toxicity for aquatic organism and a long-term harmful effect to aquatic organisms. However, EMULGEN 106 is unlikely to persist in the environment because of showing the readily biodegradation. EULGEN 106 does not bioaccumulate in the food chain.

| Effect Assessment | Result |
|-----------------------|---|
| Aquatic Toxicity | Based on the available data, likely to cause strong 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 cosmetic products, but the concentration of EMULGEN 106 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 EMULGEN 106 manufacturing facilities or in the various industrial facilities when EMULGEN 106 is used. Those workers in industrial operations during maintenance, sampling, testing, or other procedures could be exposed with EMULGEN 106. 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. 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. 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.

EMULGEN 106 may be assigned to following GHS classification.



Classification and Labeling Information

Skin Irrit. 2

Eye Dam. 1

Aquatic Acute 1

Aquatic Chronic 3

Hazard Statements:

H315: Causes skin irritation

H318: Causes serious eye damage

H400: Very 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 EMULGEN 106 is suggested to cause severe toxicity to aquatic organisms, there is no concern to the environmental organisms due to the rapid biodegradation of EMULGEN 106. In the PBT/vPvB assessments for EMULGEN 106, the substance is not applicable to PBT/vPvB. Contact with the undiluted EMULGEN 106 may cause irritation to the skin and 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 substance is used diluted products, therefore, it is considered that EMULGEN 106 gives rise no hazardous effects to human health.

10. Contact information within company

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

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Additional information can be found at the International Council of Chemical Associations portal, found at <http://www.icca-chem.org/>.

11. Glossary

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|----------------------------------|--|
| 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 Labeling 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

Dec. 25 2015