

1	CAS No.: 111-87-5	Substance: 1-Octanol
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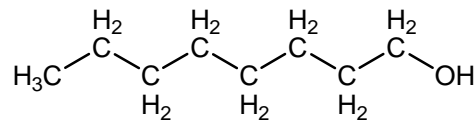
Chemical Substances Control Law Reference No.: 2-217 (alkanol (C=5-38))

PRTR Law Cabinet Order No.: 1-58

Molecular Formula: C₈H₁₈O

Molecular Weight: 130.23

Structural Formula:



1. General information

The aqueous solubility of this substance is 540 mg/L (25°C) and the partition coefficient (1-octanol / water) (log Kow) is 3.00. The vapor pressure is 0.0794 mmHg (= 10.6 Pa) (25°C). Degradability (aerobic degradation) is considered not to be persistent. It is expected that the hydrolytic degradation of this substance in water bodies is not important.

This substance is a Class 1 Designated Chemical Substance under the Law concerning Reporting, etc. of Release to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law). It is used primarily as a perfume (mixed perfumes of rose, essential oils, octylaldehyde, α-hexyl-cinnamic-aldehyde), cosmetics, a solvent of synthesized organic compound, a raw material of plasticity enhancer DOP and stabilizer, a surfactant, a polymerizer or vulcanizing agent (octylmercaptan) in synthesis of synthetic rubber and an extractor of metal (trioctylamine). Production of this substance in 2004 came to 306,589 tons (as octanol), and the export quantity was 78,580 tons (total of octanol (octyl alcohol) and its isomers) and the import quantity in 2004 was 4,588 tons (total of octanol (octyl alcohol) except 2-ethylhexyl alcohol (2-ethylhexan -1-ol) and its isomers).

2. Exposure assessment

Total release to the environment in FY2004 under the PRTR Law came to approximately 2.5 tons. Release to the atmosphere accounted for a large part of the reported release. Electrical machinery and equipment and Chemical Industry accounted for high levels of release to the atmosphere. Chemical Industry and beverage, tobacco, feedstuff companies reported high levels of release to the public water bodies.

When estimated releases outside notification are included, release to the atmosphere accounted for the greatest quantity of release to the environment. The distribution into each environmental medium predicted by means of a multimedia model was 82.1% for the atmosphere and 9.7% for water bodies in the case of the region where the estimated release quantity to the environment and atmosphere was considered to be the maximum. In the case of the region where the estimated release quantity to the public water bodies was considered to be the maximum, the distributions were 81.7% for water bodies, and 15.5% for the atmosphere.

The predicted environmental concentration (PEC) that indicates exposure to aquatic organisms was estimated to be 0.54 µg/L for freshwater and 0.017 µg/L for seawater public water bodies.

3. Initial assessment of ecological risk

With regard to acute toxicity, reliable information of a 48-hour EC₅₀ growth inhibition value of 14,000 µg/L was found for the algae *Desmodesmus subspicatus*, a 48-hour EC₅₀ immobilization value of 4,170 µg/L was found for the crustacea *Ceriodaphnia dubia* (water flea), and a 96-hour LC₅₀ value of 13,000 µg/L was found for the fish *Pimephales promelas* (fathead minnow), and a 46-hour EC₅₀ population change value of 9,430 µg/L was found for the other organism *Tetrahymena pyriformis* (*tetrahymena*). Accordingly, an assessment factor of 100 was used, a predicted no effect concentration (PNEC) of 42 µg/L was obtained based on the acute toxicity values. With regard to chronic toxicity, reliable information of a 21-day NOEC reproduction value of 1,000 µg/L was found for the crustacea *D. magna*. So an assessment factor of 100 was used, and a PNEC value of 10 µg/L was obtained based on the chronic toxicity values. As the PNEC for the substance, a value of 10 µg/L obtained from the chronic

toxicity for the crustacea was used.

The PEC/PNEC ratio was 0.05 for freshwater bodies and 0.002 for seawater bodies. Accordingly, further work is thought to be unnecessary at this time.

Hazard assessment (basis for PNEC)			Assessment factor	Predicted no effect concentration PNEC (µg/L)	Exposure assessment		PEC/PNEC ratio	Result of assessment
Species	Acute / chronic	Endpoint			Water body	Predicted environmental concentration PEC (µg/L)		
Crustacea (water flea)	Chronic	NOEC reproduction	100	10	Freshwater	0.54	0.05	○
					Seawater	0.017	0.002	

4. Conclusions

	Conclusions	Judgment
Ecological risk	No need of further work.	○

[Risk judgments] ○: No need of further work ▲: Requiring information collection

■: Candidates for further work ×: Impossible of risk characterization