

1	CAS No.: 140-88-5	Substance: Ethyl acrylate
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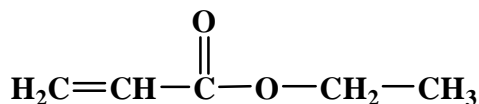
Chemical Substances Control Law Reference No.: 2-988

PRTR Law Cabinet Order No.: 1-4

Molecular Formula: C₅H₈O₂

Structural Formula:

Molecular Weight: 100.12



1. General information

The aqueous solubility of this substance is 1.50×10^4 mg/L (25°C), and the partition coefficient (1-octanol / water) (log Kow) is 1.32. The vapor pressure is 38.6 mmHg (= 5.15×10^3 Pa) (25°C). Degradability is good. In terms of hydrolyzability, the half-life is 3.5 years (at 25°C, pH = 7).

This substance is a Class 1 Designated Chemical Substance under the Law concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law). It is used primarily as a raw material for acrylic paint, adhesives and pressure-sensitive adhesives, and as a raw material for acrylic rubber and acrylic resin. Domestic production in 2003 was 223,914 tons. Export and import quantities were 46,400 tons and 46,178 tons, respectively.

2. Exposure assessment

Total release to the environment in FY2003 under the PRTR Law came to 47 tons, of which 19 tons was reported. release to the atmosphere accounted for a large part of the reported release. In addition, 19 tons was transferred as waste. Chemical Industry and Warehousing accounted for high levels of reported release to the atmosphere. Chemical Industry accounted for high levels of reported release to 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 the different media in the environment predicted by means of a multimedia model was 74.2 % for atmosphere and 25.5% for water bodies.

The predicted environmental concentration (PEC) that indicates exposure to aquatic organisms was estimated to be approximately 0.03 µg/L for freshwater and approximately 0.01 µg/L for seawater public water bodies.

3. Initial assessment of ecological risk

With regard to acute toxicity, reliable information of a 72-hour EC₅₀ growth inhibition value of 2,260 µg/L was found for the algae *Pseudokirchneriella subcapitata*, a 48-hour EC₅₀ immobilization value of 4,390 µg/L was found for the crustacea *Daphnia magna* (water flea), and a 96-hour LC₅₀ value of 1,160 µg/L was found for the fish *Oryzias latipes* (medaka). Accordingly, an assessment factor of 100 was used, and a predicted no effect concentration (PNEC) of 12 µg/L was obtained based on the acute toxicity values. With regard to chronic toxicity, reliable information of a 72-hour no observed effect concentration (NOEC) growth inhibition value of 961 µg/L was found for the algae *P. subcapitata*. Accordingly, an assessment factor of 100 was used, and a predicted no effect concentration (PNEC) of 9.6 µg/L was obtained based on the chronic toxicity values. As the PNEC for the substance, a value of 9.6 µg/L obtained from the chronic toxicity for the algae was used.

The PEC/PNEC ratio was 0.0031 for freshwater bodies and 0.0010 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)		
Algae	Chronic	NOEC growth inhibition	100	9.6	Freshwater	0.03	0.0031	○
					Seawater	0.01	0.0010	

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