

2	CAS No.: 32536-52-0	Substance: Octabromo diphenylether
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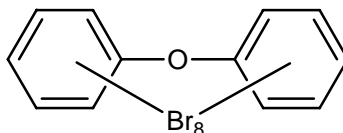
Chemical Substances Control Law Reference No.: 3-3716 (Bromide of diphenyl ether (Br = 7-9))

PRTR Law Cabinet Order No.:

Molecular Formula: C₁₂H₂Br₈O

Molecular Weight: 801.38

Structural Formula:



1. General information

The aqueous solubility of this substance is less than 5.0×10^{-4} mg/L and the partition coefficient (1-octanol / water) (log Kow) is 5.5. The vapor pressure is less than 10^{-7} mmHg (= 1.33×10^{-4} Pa) (25°C). Degradability (aerobic degradation) in terms of BOD-based degradation percentage is estimated to be 0%. This substance does not have hydrolyzable groups in the environment.

The use of this substance in Japan was discontinued. It was thought to be a fire-retardant to add PET, PBT, PS, PP, ABS, phenol and epoxy-resin, etc.

2. Exposure assessment

As Octabromo diphenylether is not 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), release and transfer quantities could not be obtained. When predictions of distribution ratios by medium were made using the Mackay-Type Level III Fugacity Model, in the event of equal release to the atmosphere, water and soil, the distribution ratio was highest for soil.

The predicted environmental concentration (PEC) that indicates exposure to aquatic organisms was estimated to be less than 0.003 µg/L for freshwater and less than 0.003 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 exceeding 12.0 µg/L was found for the algae *Pseudokirchneriella subcapitata*, a 48-hour EC₅₀ immobilization value exceeding 10.5 µg/L was found for the crustacea *Daphnia magna* (water flea), and a 96-hour LC₅₀ value exceeding 11.7 µg/L was found for the fish *Oryzias latipes* (medaka). Accordingly, an assessment factor of 100 was used, a predicted no effect concentration (PNEC) exceeding 0.11 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 12.0 µg/L was found for the algae *P. subcapitata*, and a 21-day NOEC reproduction value exceeding 10.8 µg/L was found for the crustacea *D. magna*. So an assessment factor of 100 was used, and a PNEC value exceeding 0.11 µg/L was obtained based on the chronic toxicity values. As the PNEC for the substance, a value exceeding 0.11 µg/L obtained from the acute and chronic toxicities for the crustacea was used.

The PEC/PNEC ratio was less than 0.03 for both freshwater bodies and 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)	Acute / chronic	EC ₅₀ immobilization / NOEC reproduction	100	> 0.11	Freshwater	< 0.003	< 0.03	○
					Seawater	< 0.003	< 0.03	

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