

1. General information

The aqueous solubility of this substance is 8.269×10^5 mg/L (4.5°C), the partition coefficient (1-octanol/water) (log K_{ow}) is -2.65 (calculated value), and the vapor pressure is 9.8×10^{-3} mmHg (= 1.3 Pa) (20°C). Biodegradability (aerobic degradation) is characterized by a BOD degradation rate of 0% and bioaccumulation is judged to be non-existent or low. The substance does not hydrolyze.

This substance is designated as 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). The main uses of this substance are as a raw material for other chemicals (wet paper strengthening agents, lubricant additives, chelating agents, surfactants, etc.) and as a curing agent for epoxy resin. The production and import quantity in fiscal 2012 was 7,000 t. The production and import category under the PRTR Law is more than 100 t.

2. Exposure assessment

Total release to the environment in fiscal 2012 under the PRTR Law was approximately 4.9 t, of which approximately 4.8 t or 97% of overall releases were reported. The major destination of reported releases was public water bodies. In addition, approximately 13 t was transferred to waste materials. Industry types with large reported releases were the shipbuilding and repair industry and the electrical machinery manufacturing industry for the atmosphere and the chemical industry for public water bodies. The largest release among releases to the environment including those unreported was to water bodies. A multi-media model used to predict the proportions distributed to individual media in the environment indicated that in regions where the largest quantities were estimated to have been released to the environment overall or to public water bodies in particular, the predicted proportion distributed to water bodies was 97.3%. In regions where the largest estimated releases were to the atmosphere, the predicted proportion distributed to water bodies was 97.8%.

The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was around less than 0.6 μ g/L for public freshwater bodies and less than 0.6 μ g/L for seawater. When releases to public freshwater bodies in fiscal 2012 reported according to the PRTR Law were divided by the ordinary water discharge of the national river channel structure database, estimating the concentration in rivers by taking into consideration only dilution gave a maximum value of 1.4 μ g/L.

3. Initial assessment of ecological risk

With regard to acute toxicity, the following reliable data were obtained: a 96-h EC₅₀ of 3,700 µg/L for growth inhibition in the green alga *Pseudokirchneriella subcapitata*, a 48-h EC₅₀ of 33,900 µg/L for swimming inhibition in the crustacean *Daphnia magna*, and a 96-h LC₅₀ exceeding 110,000 µg/L for the fish species *Oryzias latipes* (medaka),. Accordingly, based on these acute toxicity values and an assessment factor of 100, a predicted no effect concentration (PNEC) of 37 µg/L was obtained.

With regard to chronic toxicity, the following reliable data were obtained: a 72-h NOEC of 468 µg/L for

growth inhibition in the green alga *P. subcapitata*, and a 21-d NOEC of 2,860 μ g/L for reproductive inhibition in the crustacean *D. magna*. Accordingly, based on these chronic toxicity values and an assessment factor of 100, a PNEC of 4.6 μ g/L was obtained.

The value of 4.6 μ g/L obtained from the chronic toxicity to the green alga was used as the PNEC for this substance.

The PEC/PNEC ratio is less than 0.13 for both freshwater bodies and seawater. As such, a judgment on ecological risk cannot be made. When releases to public freshwater bodies in fiscal 2012 reported according to the PRTR Law were divided by the ordinary water discharge of the national river channel structure database, estimating the concentration in rivers by taking into consideration only dilution gave a maximum value of 1.4 μ g/L, suggesting that the PEC/PNEC ratio may exceed 0.1 at certain locations. Accordingly, efforts to collect data on this substance are needed, as are measurements of environmental concentrations by taking PRTR data into consideration.

Hazard As	nent (Basis for l	PNEC)		Predicted no	Exposure Assessment					
Species	Ac	ute/ chronic	Endpoint	Assessment Coefficient	effect concentration PNEC (µg/L)	Water body	Predicted environmental concentration PEC (µg/L)	PEC/PNEC ratio	Judgment based PEC/PNEC rati	
Green algae	Chronic		NOEC	100	4.6	Freshwater	<0.6	<0.13	×	
Green argue		Chrome	growth inhibition	100		Seawater	<0.6	<0.13		_
4. Conclusion	ns	Conclusions								Judgment
	ns	Conclusions								Judgment
Ecological risk	Regularing information collection									
[Risk judgments] O: No need for further work A: Requiring information collection										
Candidates for further work ×: Impossibility of risk characterization										
(\bigcirc) : Although risk characterization could not be confirmed, collection of further										
information would not be required.										
(\blacktriangle) : Further information collection would be required for risk characterization.										