

5	CAS No.: 88-89-1	Substance: Picric acid
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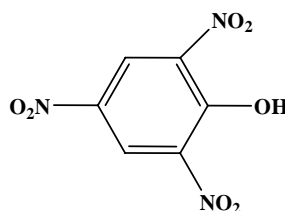
Chemical Substances Control Law Reference No.: 3-823

PRTR Law Cabinet Order No.: 1-244

Molecular Formula: C₆H₃N₃O₇

Structural Formula:

Molecular Weight: 229.10



1. General information

The aqueous solubility of this substance is 1.27×10^4 mg/L (25°C), and the partition coefficient (1-octanol / water) (log Kow) is 1.33. The vapor pressure is 7.50×10^{-7} mmHg (= 1.00×10^{-4} Pa) (25°C). The substance is determined to be persistent but not highly bioaccumulative. In addition, it is thought to not have hydrolyzable groups.

This substance is a Type 2 Monitoring Chemical Substance under the Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances and 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). Its primary uses and release sources are as a synthetic raw material (for agricultural chemicals [chloropicrin] and dyes) and in fireworks. Domestic production (shipment) and import quantities in 2001 were from 100 to less than 1,000 tons. Production and import quantities under the PRTR law are 1,000 tons.

2. Exposure assessment

Total release to the environment in FY2003 under the PRTR Law came to 0.006 tons, all of which was reported and all of which was released to public water bodies. In addition, 11 tons was transferred as waste. Only chemical companies accounted for all of the reported release.

Release to the environment consisted solely of release to water bodies. The distribution into the different media in the environment predicted by means of a multimedia model was 99.9% for water bodies.

It was not possible to establish a predicted environmental concentration (PEC) that indicates exposure to aquatic organisms, as environmental concentrations sufficient for assessment have not been obtained.

3. Initial assessment of ecological risk

With regard to acute toxicity, reliable information of a 96-hour EC₅₀ growth inhibition value of more than 500,000 µg/L was found for the algae *Pseudokirchneriella subcapitata*, a 48-hour LC₅₀ value of 85,000 µg/L was found for the crustacea *Daphnia magna* (water flea), a 96-hour LC₅₀ value of 109,600 µg/L was found for the fish *Oncorhynchus mykiss* (rainbow trout), and a 144-hour EC₅₀ value of 140,400 µg/L was found for *Crassostrea virginica* (Virginia oyster). Accordingly, an assessment factor of 100 was used, and a predicted no effect concentration (PNEC) of 850 µg/L was obtained based on the acute toxicity values. With regard to chronic toxicity, reliable information of a 21-day no observed effect concentration (NOEC) reproduction value of 5,000 µg/L was found for the crustacea *D. magna*. Accordingly, an assessment factor of 100 was used, and a PNEC of 50 µg/L was obtained based on the chronic toxicity values. As the PNEC for the substance, a value of 50 µg/L obtained from the chronic toxicity for the crustacea was used.

As data sufficient to enable assessment have not been obtained at present, it was not possible to assess the ecological risk. However, there is thought to be little need to prioritize efforts to determine the presence of this

substance in the environment in order to enable the assessment of ecological risk.

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	Chronic	NOEC reproduction	100	50	Freshwater	–	–	x
					Seawater	–	–	

4. Conclusions

	Conclusions	Judgment
Ecological risk	Impossible of risk characterization. However, there is thought to be little need to prioritize efforts to determine the presence of this substance in the environment in order to enable the assessment of ecological risk.	×

[Risk judgments] ○: No need of further work ▲: Requiring information collection
 ■: Candidates for further work ×: Impossible of risk characterization