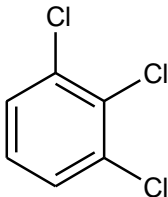


6	CAS No.: 87-61-6	Substance: 1,2,3-Trichlorobenzene
<p>Chemical Substances Control Law Reference No.: 3-74 (Trichlorobenzene) PRTR Law Cabinet Order No.: – (Cabinet Order No. after revision*: 1-290 (Trichlorobenzene))</p> <p style="text-align: center;">Structural Formula:</p> <p>Molecular Formula: C₆H₃Cl₃ Molecular Weight: 181.45</p> <div style="text-align: center;">  </div> <p>*Note: No. according to revised order enacted on October 1, 2009.</p>		
<p>1. General information</p> <p>The aqueous solubility of this substance is 21 mg/1000 g (25°C), the partition coefficient (1-octanol/water) (log K_{ow}) is 4.04, and the vapor pressure is 0.21 mmHg (=28 Pa) (25°C). The biodegradability (aerobic degradation) of trichlorobenzene is not considered to be favorable, and bioaccumulation is thought to be intermediate. The substance does not have any hydrolyzable groups.</p> <p>This substance is designated as a Type II Monitoring Chemical Substance and Type III Monitoring Chemical Substance under the Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances. In addition, based on a revision of substances regulated by the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law) (enacted on October 1, 2009), trichlorobenzene was newly designated as a Class 1 Designated Chemical Substance. The main applications of trichlorobenzene are as a dyestuff and pigment intermediate, and as a transformer oil and lubricant. The production (shipments) and import quantity in fiscal 2004 was 100 to <1,000 t.</p> <p>-----</p> <p>2. Exposure assessment</p> <p>Because this substance was not classified as a Class 1 Designated Chemical Substance prior to revision of substances regulated by the PRTR Law, release and transfer quantities could not be obtained. Predictions of distribution by medium using a Mackay-type level III fugacity model indicated that if equal quantities were released to the atmosphere, water bodies, and soil, the proportion distributed to soil would be higher.</p> <p>The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was estimated to be around 3 µg/L for public freshwater bodies, and less than around 0.01 µg/L for seawater.</p> <p>-----</p> <p>3. Initial assessment of ecological risk</p> <p>With regard to acute toxicity, the following reliable data were obtained: a 72-h median effective concentration (EC₅₀) of 1,630 µg/L for growth inhibition in the green algae <i>Pseudokirchneriella subcapitata</i>; a 48-h EC₅₀ of 458 µg/L for swimming inhibition in the crustacean <i>Daphnia magna</i>; a 96-h median lethal concentration (LC₅₀) of 348 µg/L for the fish species <i>Poecilia reticulata</i> (guppy); and a 48-h LC₅₀ of 1,700 µg/L for the midge <i>Chironomus riparius</i>. Accordingly, based on these acute toxicity values and an assessment factor of 100, a predicted no effect concentration (PNEC) of 3.5 µg/L was obtained. With regard to chronic toxicity, the following reliable data were obtained: a 72-h no observed effect concentration (NOEC) of 225 µg/L for growth inhibition in the green algae <i>P. subcapitata</i>; a 21-d NOEC of 167 µg/L for reproductive inhibition in the crustacean <i>D. magna</i>; and a 28-d NOEC of 250 µg/L for developmental inhibition/hatching/mortality of the fish species <i>Danio rerio</i> (zebrafish). Accordingly, based on these chronic toxicity values and an assessment factor of 10, a predicted no effect concentration (PNEC) of 17 µg/L was obtained. The value of 3.5 µg/L obtained from the acute toxicity to the fish was used as the PNEC for this substance.</p>		

The PEC/PNEC ratio was 0.9 for freshwater bodies and less than 0.003 for seawater. Accordingly, data collection is considered to be required.

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)		
Fish (guppy)	Acute	LC ₅₀ Mortality	100	3.5	Freshwater	3	0.9	▲
					Seawater	<0.01	<0.003	

4. Conclusions

	Conclusions	Judgment
Ecological risk	Requiring information collection.	▲

[Risk judgments] ○: No need for further work ▲: Requiring information collection
 ■: Candidates for further work ×: Impossibility of risk characterization
 (○) : Though a risk characterization cannot be determined, there would be little necessity of collecting information.
 (▲) : Further information collection would be required for risk characterization.