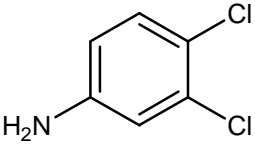| 2	CAS No.: 95-76-1	Substance: 3,4-Dichloroaniline

Chemical Substances Control Law Reference No.: 3-261 (Dichloroaniline)

PRTR Law Cabinet Order No.*: 1-156 (Dichloroaniline)

Molecular Formula: $C_6H_5Cl_2N$ Structural formula:

Molecular Weight: 162.02

*Note: No. in Revised Cabinet Order enacted on October 1, 2009

1. General information

The aqueous solubility of this substance is 92.0 mg/L (20°C), the partition coefficient (1-octanol/water) (log K_{ow}) is 2.69, and the vapor pressure is 9.75×10^{-3} mmHg(=1.3 Pa) (20°C). The biodegradability (aerobic degradation) is characterized by a BOD degradation rate of 0%, and bioaccumulation is thought to be nonexistent or low. Based on its molecular structure, hydrolysis is not anticipated under normal environmental conditions.

This substance is designated as a Type III Monitoring Chemical Substance under the Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances, and dichloroaniline 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). The main uses are agricultural chemical (herbicide) raw materials and dyestuff intermediates. The production (shipments) and import quantity for dichloroaniline in fiscal 2007 was 10 to <100 t/y. The production and import category under the PRTR Law was 1 to <100 t.

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2. Exposure assessment

Because this substance 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. 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 greater.

The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was around 0.68 µg/L for freshwater bodies and less than around 0.1 µg/L for seawater.

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3. Initial assessment of ecological risk

With regard to acute toxicity, the following reliable data were obtained: a 96-h EC_{50} of 450 µg/L for growth inhibition in the diatom *Phaeodactylum tricornutum*, a 48-h EC_{50} of 54 µg/L for swimming inhibition in the crustacean *Daphnia magna*, a 96-h LC_{50} of 1,940 µg/L for the fish species *Oncorhynchus mykiss* (rainbow trout), and a 96-h LC_{50} of 4.37 µg/L for the mosquito *Aedes aegypti*. Accordingly, based on these acute toxicity values and an assessment coefficient of 100, a predicted no effect concentration (PNEC) of 0.54 µg/L was obtained.

With regard to chronic toxicity, the following reliable data were obtained: a 72-h NOEC of 1,250 µg/L for growth inhibition in the green algae *Pseudokirchneriella subcapitata*, a 14-d NOEC of 2.5 µg/L for reproductive inhibition in the crustacean *D. magna*, a 182-d NOEC of less than 2 µg/L for reproductive inhibition or growth inhibition fish species *Poecilia reticulata* (guppy), and a 38-d NOEC of 3 µg/L for mortality, growth and reproduction in the polychaete *Ophryotrocha diadema*. Accordingly, based on these chronic toxicity values and an assessment coefficient of 10, a

predicted no effect concentration (PNEC) of less than 0.2 µg/L was obtained. The value of less than 0.2 µg/L obtained from the chronic toxicity to the fish species was used as the PNEC for this substance.

The PEC/PNEC ratio was more than 3.4 for freshwater bodies. Accordingly, this substance is considered a candidate for detailed assessment.

Hazard assessment (basis for PNEC)			Assessment coefficient	Predicted no effect concentration PNEC (µg/L)	Exposure assessment		PEC/ PNEC ratio	Judgment based on PEC/PNEC ratio	Assessment result
Species	Acute/ chronic	End point			Water body	Predicted environmental concentration PEC (µg/L)			
Fish species guppy	Chronic	NOEC reproductive inhibition/growth inhibition	10	<0.2	Freshwater	0.68	>3.4	■	■
					Seawater	<0.1	—		

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4. Conclusions

	Conclusions	Judgment
Ecological risk	Considered candidate for detailed assessment.	■

〔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.