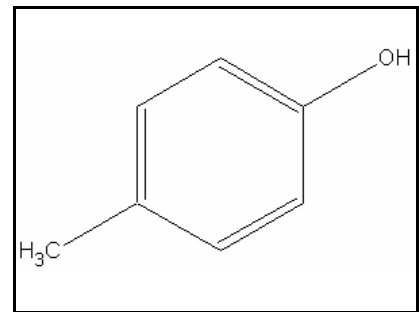




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

4-METHYLPHENOL

CAS RN: 106-44-5
Water Solubility: <0.1 g/100 mL at 21 C
Log K_{ow}:



Standard

The procedures described in the Tier II methodology indicate that, except possibly where a locally important species is very sensitive, aquatic organisms should not be affected unacceptably if the four (4) day average concentration of 4-methylphenol does not exceed 53 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 480 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

$$\text{SAV} = \text{lowest GMAV/SAF}$$

$$\begin{aligned} \text{Lowest GMAV} &= 7,700 \text{ } \mu\text{g/L} \\ \text{SAF} &= 8.0 \end{aligned}$$

$$\text{SAV} = 7,700/8.0 = 962.5 \text{ } \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 962.5/2 = \mathbf{480 \text{ } \mu\text{g/L}}$$

Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 18$$

$$SCV = 962.5/18 = \mathbf{53 \mu g/L}$$

Data

Table 1. GMAVs and SMAVs for 4-methylphenol

<u>Genus Mean Acute Value ($\mu\text{g/L}$)</u>	<u>Species</u>	<u>Species Mean Acute Value ($\mu\text{g/L}$)</u>	<u>Acute- Chronic Ratio</u>	<u>Reference Number</u>
11,681	Fathead Minnow <u>Pimephales promelas</u>	28,600		2
	Fathead Minnow <u>Pimephales promelas</u>	16,500		3
2,775	Cladoceran <u>Daphnia magna</u>	7,700		1
1,120	Rainbow Trout <u>Oncorhynchus mykiss</u>	7,900		2

References

1. Kuhn,R., M.Pattard, K.Pernak, and A.Winter 1989. Results of the Harmful Effects of Selected Water Pollutants (Anilines, Phenols, Aliphatic Compounds) to *Daphnia magna* Water Res. 23(4):495-499.
2. Degraeve,G.M., D.L.Geiger, J.S.Meyer, and H.L.Bergman 1980. Acute and Embryo-Larval Toxicity of Phenolic Compounds to Aquatic Biota. Arch. Environ. Contam. Toxicol. 9(5):557-568.
3. Geiger,D.L., S.H.Poirier, L.T.Brooke, and D.J.Call 1986. Acute Toxicities of Organic

Acronyms/Abbreviations

CAS RN	Chemical Abstract Service Registry Number
K_{ow}	Octanol-Water Partition Coefficient
P (superscript)	Predicted value
SAV	Secondary Acute Value
GMAV	Genus Mean Acute Value
SAF	Secondary Acute Factor
SMC	Secondary Maximum Concentration
SCC	Secondary Continuous Concentration
SACR	Secondary Acute-Chronic Ratio
FT	Flow-through
S	Static
U	Unmeasured
M	Measured
EVISTRA	Evaluation and Interpretation of Suitable Test Results in AQUIRE (EPA quality checking method/database)

Revision History

June 24, 1999
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Values first developed
New search for data. No new studies added.

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