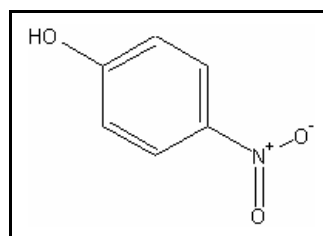




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

4-NITROPHENOL

CAS RN:	100-02-7
Water Solubility:	1.6 g/100 mL
Log K _{ow} :	1.85 ^P
Vapor Pressure:	4.3 x 10 ⁻⁴ mm of Hg ^P
Environmental Partitioning @25 °C:	98.5% into Water ^P
Hydrolysis Half-life:	hydrolysis unlikely



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-nitrophenol does not exceed 58 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 530 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 8,400 \text{ } \mu\text{g/L} \\ \text{SAF} &= 8.0\end{aligned}$$

$$\text{SAV} = 8,400/8.0 = 1,050 \text{ } \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 1,050/2 = \mathbf{530 \text{ } \mu\text{g/L}}$$

Chronic Aquatic Life:

$$\text{SCC} = \text{SAV}/\text{SACR}$$

$$\text{SACR} = 18$$

$$\text{SCC} = 1,050/18 = \mathbf{58 \mu\text{g/L}}$$

Data

Table 1. Toxicity data used in the derivation of the acute and chronic aquatic life values.

Species	LC ₅₀ /EC ₅₀ (μg/L)	Duration (hr)	Test Type	Chemical Form	SMAV (μg/L)	GMAV (μg/L)	Reference Number	EVISTRA Score N, U, M
Bluegill <u>Lepomis</u> <u>macrochirus</u>	8,400	96	S,U	4- Nitrophenol	8,400	8,400	1	
Fathead Minnow <u>Pimephales</u> <u>promelas</u>	58,000	96	FT,M	4- Nitrophenol	58,600	58,600	2	
Channel Catfish <u>Ictalurus</u> <u>punctatus</u>	15,000	96	FT,M	4- Nitrophenol	15,000	15,000	3	
Cladoceran <u>Daphnia</u> <u>magna</u>	7,680	48	S,M	4- Nitrophenol	11,226	11,226	4	
Cladoceran <u>Daphnia</u> <u>magna</u>	4,700	48	S,U	4- Nitrophenol			5	
Cladoceran <u>Daphnia</u> <u>magna</u>	22,000	48	S,U	4- Nitrophenol			6	
Cladoceran <u>Daphnia</u> <u>magna</u>	20,000	48	S,U	4- Nitrophenol			7	

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Acronyms

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-thru
S	Static
U	Unmeasured
M	Measured
EVISTRA	Evaluation and Interpretation of Suitable Test Results in AQUIRE (EPA quality checking method/database)

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