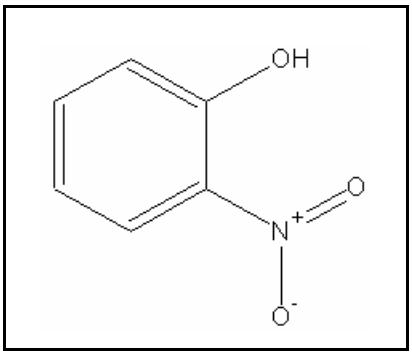
Indiana Department of Environmental Management
Office of Water - Water Quality Standards Section

TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

2-NITROPHENOL

CAS RN: 88-75-5
Water Solubility: 0.21 g/100 mL
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 2-nitrophenol does not exceed 73 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 650 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

SAV = lowest GMAV/SAF

Lowest GMAV = 17,000 µg/L
SAF = 13

SAV = 17,000/13 = 1,308 µg/L

SMC = SAV/2 = 1,308/2 = **650 µg/L**

Chronic Aquatic Life:

SCV = SAV/SACR

SACR = 18

SCV = 1,308/18 = **73 μg/L**

Data

Table 1. GMAVs and SMAVs for 2-nitrophenol

Genus Mean Acute Value (μg/L)	Species	Species Mean Acute Value (μg/L)	Acute-Chronic Ratio	Reference Number
17,000	Cladoceran Daphnia magna	17,000		1
160,000	Fathead Minnow Pimephales promelas	160,000		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. Geiger,D.L., D.J.Call, and L.T.Brooke 1988. Acute Toxicities of Organic Chemicals to Fathead Minnows (Pimephales promelas), Vol. 4. Center for Lake Superior Environmental Studies, University of Wisconsin, Superior, WI:355 p.

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

April 13, 1999 Values first developed
May 15, 2001 New search for data. No new studies added.

Contact Information

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