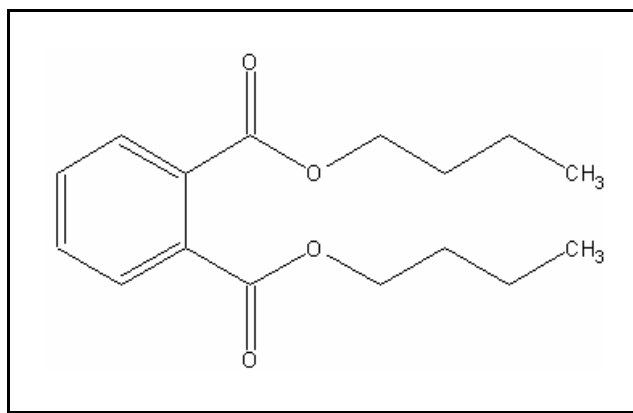




TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

DI-N-BUTYL PHTHALATE

CAS RN: 71-43-2
Water Solubility: 0.18 g/100 mL
Log K_{ow} : 5.15



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 di-n-butyl phthalate does not exceed 19 µg/L more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 34 µg/L more than once every three (3) years on the average.

Calculations

Acute Aquatic Life:

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

$$\begin{aligned}\text{Lowest GMAV} &= 350 \text{ } \mu\text{g/L} \\ SAF &= 5.2\end{aligned}$$

$$SAV = 350/5.2 = 67.31 \text{ } \mu\text{g/L}$$

$$SMC = SAV/2 = 67.31/2 = \mathbf{34 \text{ } \mu\text{g/L}}$$

Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 3.6 \text{ (geometric mean of 2, 2, and 11.43)}$$

$$SCV = 67.31/3.6 = \mathbf{19 \mu g/L}$$

Calculation of ACR's

Fathead Minnows

$$NOEC = 264 \mu g/L$$

$$LOEC = 625 \mu g/L$$

$$CV = \text{Geometric Mean of 264 and 625} = 406$$

$$ACR = 775.6/406 = 2$$

Rainbow Trout

$$MATC = 140 \mu g/L$$

$$ACR = 1,600/140 = 11.43$$

Daphnia magna

$$MATC = 1,550 \mu g/L$$

$$ACR = 2,990/1,550 = 2$$

Data

Table 1. GMAVs and SMAVs for di-n-butyl phthalate

<u>Genus Mean Acute Value ($\mu g/L$)</u>	<u>Species</u>	<u>Species Mean Acute Value ($\mu g/L$)</u>	<u>Acute- Chronic Ratio</u>	<u>Reference Number</u>
834	Bluegill <u>Lepomis macrochirus</u>	1,448		1,5
	Bluegill <u>Lepomis macrochirus</u>	480		8

3,621	Cladoceran <u>Daphnia magna</u>	4,386		2,6
	Cladoceran <u>Daphnia magna</u>	2,990	2	8,9
1,015	Fathead Minnow <u>Pimephales promelas</u>	1,119	2	3,4,5
	Fathead Minnow <u>Pimephales promelas</u>	920		8
1,938	Rainbow Trout <u>Onchorhynchus mykiss</u>	2,348		5
	Rainbow Trout <u>Onchorhynchus mykiss</u>	1,600	11.43	8,9
1,157	Channel Catfish <u>Ictalurus punctatus</u>	1,157		5
2,100	Scud <u>Gammarus pseudolimnaeus</u>	2,100		5
10,000	Crayfish <u>Orconectes nais</u>	10,000		5
350	Yellow Perch <u>Yellowsis perchis</u>	350		5
760	Midge <u>Chironomous riparius</u>	760		7
6,290	Midge <u>Paratanytarsus parthenogenetica</u>	6,290		8

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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

March 21, 1997 Values first developed
March 30, 2001 New search for data. Two studies added. New chronic value calculated.

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