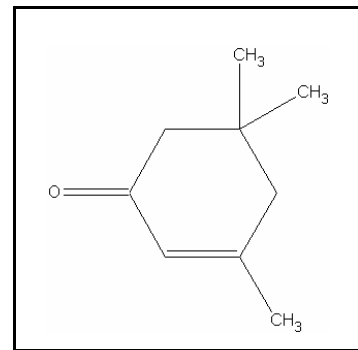




## TIER II ACUTE AND CHRONIC AQUATIC LIFE VALUES

### ISOPHORONE

CAS RN: 78-59-1  
Water Solubility: 1.2 g/100 mL  
Log  $K_{ow}$ : 2.22<sup>P</sup>



#### 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 isophorone does not exceed 830  $\mu\text{g/L}$  more than once every three (3) years on the average and if the one (1) hour average concentration does not exceed 7,500  $\mu\text{g/L}$  more than once every three (3) years on the average.

#### Calculations

##### Acute Aquatic Life:

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

$$\text{Lowest GMAV} = 120,000 \mu\text{g/L}$$

$$\text{SAF} = 8.0$$

$$\text{SAV} = 120,000/8.0 = 15,000 \mu\text{g/L}$$

$$\text{SMC} = \text{SAV}/2 = 15,000/2 = \mathbf{7,500 \mu\text{g/L}}$$

##### Chronic Aquatic Life:

$$SCV = SAV/SACR$$

$$SACR = 18$$

$$SCV = 15,000/18 = \mathbf{830 \mu g/L}$$

## Data

Table 1. GMAVs and SMAVs for isophorone

<u>Genus Mean Acute Value (<math>\mu\text{g/L}</math>)</u>	<u>Species</u>	<u>Species Mean Acute Value (<math>\mu\text{g/L}</math>)</u>	<u>Acute- Chronic Ratio</u>	<u>Reference Number</u>
220,000	Bluegill <u>Lepomis macrochirus</u>	220,000		1
103,000	Fathead Minnow <u>Pimephales promelas</u>	255,000		2
192,289	Fathead Minnow <u>Pimephales promelas</u>	145,000		2
120,000	Cladoceran <u>Daphnia magna</u>	120,000		3

## References

1. Buccafusco, R.J., S.J. Ells, and G.A. LeBlanc 1981. Acute toxicity of priority pollutants to bluegill (*Lepomis macrochirus*). Bull. Environ. Contam. Toxicol. 26(4): 446-452.
2. Cairns, M. and A. Nebeker 1982. Toxicity of acenaphthene and isophorone to early life stages of fathead minnows. Arch. Environ. Contam. Toxicol. 11: 703-707.
3. LeBlanc, G.A. 1980. Acute toxicity of priority pollutants to Daphnia magna. Bull. Environ. Contam. Toxicol. 24(5): 684-691.

## Acronyms/Abbreviations

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CAS RN	Chemical Abstract Service Registry Number
K <sub>ow</sub>	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

October 19, 1998      Values first developed  
May 16, 2001        New search for data. No new studies added.

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