

OHIO EPA SURFACE WATER QUALITY CRITERION FACT SHEET

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Chemical Name: Lindane Developed by: Bob Heitzman

CAS # 58-89-9 Data Retrieval Date:

Internal Code # 21 Fact Sheet Preparation Date: 1-26-98

This fact sheet documents the calculation of the Lake Erie Basin Tier II chronic criterion for lindane. Tier I acute criteria were calculated as part of the federal Water Quality Guidance for the Great Lakes System (60 FR 15366). Because insufficient data were available to calculate Tier I chronic criteria, no chronic criteria were in the GLWQG. Sufficient data are available, however, to calculate Tier II chronic criteria.

### ACUTE DATA

See reference number 1.

### CHRONIC DATA

<u>SPECIES</u>	<u>CHRONIC VALUE</u> ( $\mu\text{g/l}$ )	<u>METHOD</u>	<u>SMCV<sup>b</sup></u> ( $\mu\text{g/l}$ )	<u>GMCV<sup>b</sup></u> ( $\mu\text{g/l}$ )	<u>REFERENCE</u> <u>NUMBER</u>
Cladoceran <i>Daphnia magna</i>	11-19 14.46	Life Cycle	14.46	14.46	2
Scud 4.3-8.6 <i>Gammarus fasciatus</i>	Life Cycle 6.081	6.081	6.081	2	
Midge <i>Chironomus tentans</i>	2.2-5.0 3.317	Life Cycle	3.317	3.317	2
Fathead Minnow <i>Pimephales promelas</i>	9.1-23.5 14.62	Life Cycle	14.62	14.62	2

### REFERENCES

1. U.S. EPA. 1995. Great Lakes Water Quality Initiative Criteria Documents for the Protection of Aquatic Life in Ambient Water. EPA-820-B-95-004.
2. U.S. EPA. 1980. Ambient Water Quality Criteria for Hexachlorocyclohexane. EPA 440/5-80-054.

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CALCULATION OF ACUTE AQUATIC VALUE (AAV)<sup>a</sup>

Final Acute Value (FAV) = 1.903 = 1.9 µg/l (U.S. EPA 1995)

Tier I Acute Aquatic Criterion (AAC) = FAV ÷ 2  
 = 1.903 ÷ 2  
 = 0.9515 = 0.95 µg/l

CALCULATION OF CHRONIC AQUATIC VALUE (CAV)<sup>a</sup>

Experimentally determined Acute-Chronic Ratios (ACRs):

<u>SPECIES</u>	<u>ACUTE VALUE</u> <u>(µg/l)</u>	<u>CHRONIC VALUE</u> <u>(µg/l)</u>	<u>ACUTE-CHRONIC</u> <u>RATIO</u>	<u>SPECIES MEAN</u> <u>ACR</u>
Cladoceran <i>Daphnia magna</i>	485	14.46	33.54	33.54
Midge <i>Chironomus tentans</i>	207	3.317	62.41	62.41

The fathead minnow ratio in U.S. EPA (1980) was judged not acceptable (U.S. EPA 1995).

$$\sqrt[3]{(33.54)(62.41)(18)} = 33.52$$

Secondary Acute-Chronic Ratio (SACR) =

Chronic Aquatic Value (CAV) = FAV ÷ SACR  
 = 1.903 ÷ 33.52  
 = 0.05677 = 0.057 µg/l

<sup>a</sup>See Ohio Administrative Code 3745-1-36 effective February 22, 2002.