

Rule 57 Aquatic Values Data Sheet

Chemical name: Acrylamide
CAS #: 79-06-1

Developed by: D. Bush

Approved by: *WBP*

Approval date: 8/4/08

Literature search date: 1/3/08

FAV: 11,000 ug/L

AMV: 5,300 ug/L

FCV: 590 ug/L

Acute CF: ---- Chronic CF: ----

(Tier 2)

(Tier 2)

(Tier 2)

ACUTE DATA

Species	Test type (EC or LC50)	Duration (hours)	Test conditions (FT,M, etc.)	Hardness mg/L	LC50/EC50 ug/L	SMAV ug/L	GMAV ug/L	Rank	Reference
Scud (<i>Gammarus pseudolimnaeus</i>)	LC50	96	FT,M	50.8	55,400	55,400	55,400	1	1
Bluegill (<i>Lepomis macrochirus</i>)	EC50	96	FT,M		85,000	85,000	85,000	2	2
	LC50	96	FT,M		100,000*				2
Rainbow trout (<i>Oncorhynchus mykiss</i>)	EC50	96	FT,M		88,000	88,000	88,000	3	2
	LC50	96	FT,M		110,000*				2
Fathead minnow (<i>Pimephales promelas</i>)	EC50	96	FT,M		86,000	95,026	95,026	4	2
	LC50	96	FT,M		120,000*				2
	EC50	96	FT,M	50.8	105,000				3
	LC50	96	FT,M	50.8	109,000*				1,3
	LC50	96	S,M	55.5	151,000**				1
Water flea (<i>Daphnia magna</i>)	EC50	48	FT,M		98,000	98,000	98,000	5	2
	LC50	48	FT,M		160,000*				2
Midge (<i>Paratanytarsus parthenogenetica</i>)	EC50	48	FT,M		230,000	230,000	230,000	6	2
	LC50	48	FT,M		410,000*				2

* Value not used to derive the SMAV because an EC50 from the same test is a higher priority.

** Value not used to derive the SMAV because a FT,M test is a higher priority than a S,M test.

CHRONIC DATA

Species	Test type (ELS, etc.)	Duration (days)	Study		Hardness mg/L	MATC ug/L	SMCV ug/L	GMCV ug/L	Rank	Reference
			Conditions (FT,M etc.)							

No useful chronic studies available.

References:

- 1.) Brooke, L. 1987. Report of the Flow-Through and Static Acute Test Comparisons with Fathead Minnows and Acute Tests with an Amphipod and a Cladoceran. Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, Superior, WI:24p.
- 2.) Krautter, G.R., R.W. Mast, H.C. Alexander, et al. 1986. Acute aquatic toxicity tests with acrylamide monomer and macroinvertebrates and fish Environ. Sci. Chem. 5:373-377.
- 3.) Geiger, D.L., L.T. Brooke, and D.J. Call. 1990. Acute Toxicities of Organic Chemicals to Fathead Minnows (*Pimephales promelas*), Volume 5. Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, Superior, WI:332p.

Studies reviewed but not used:

- American Cyanamid Company. 1990. Aquatic Toxicity Tests Versus Onchorhynchus mykiss. (purity of the CT-444-90D substance unknown and the tests were unmeasured)
- Petersen, D.W., K.M. Kleinow, R.C. Kraska, et al. 1985. Uptake, disposition, and elimination of acrylamide in rainbow trout. Toxicol. Appl. Pharmacol. 80:58-65. (insufficient details of study design provided)

Rule 57 Aquatic Values Work Sheet

Min. data req. met	Acute Factor
2	13
3	8
4	7
5	6.1
6	5.2
7	4.3

Chemical Name: Acrylamide
C.A.S. #: 79-06-1

AQUATIC MAXIMUM VALUE CALCULATIONS

- A. Minimum 8 species requirement is **not** met. Minimum requirements met = 6
Minimum requirements missing for Tier I = 2
Acute factor = 5.2

1. Toxicity **is not** dependent on a water characteristic

a. FAV calculation
$$FAV = \frac{55,400 \text{ ug/L}}{5.2} = 10,654 \text{ ug/L} = 11,000 \text{ ug/L}$$

2. Toxicity **is** dependent on a water characteristic

a. Slope = (Table)

b. FAV equation:

3. Go to C.

- B. Minimum 8 species requirement **is** met (Tier I)

1. Toxicity **is not** dependent on a water characteristic

a. FAV calculation: Att.

2. Toxicity **is** dependent on a water characteristic

a. Slope = (Table)

b. Ranked genus mean acute intercepts: Table

c. Final acute intercept = (Att.)

In of final acute intercept =

d. FAV equation =

- C. Aquatic Maximum Value (AMV) calculation:

$$AMV = \frac{55,400 \text{ ug/L}}{5.2} \div 2 = 5,327 \text{ ug/L} = 5,300 \text{ ug/L}$$

FINAL CHRONIC VALUE CALCULATIONS

- A. Minimum 8 species requirement is **not** met (Tier II). Minimum requirements met = 0
Minimum requirements missing for Tier I =

1. Acute to chronic ratio

a. Number ACRs meeting minimum data requirements = ____ (Table ____)

b. Acute to chronic ratio = 18

2. Toxicity **is not** dependent on a water characteristic

$$FCV = \frac{55,400 \text{ } \mu\text{g/L}}{5.2} \div 18 = 592 \text{ } \mu\text{g/L} = 590 \text{ } \mu\text{g/L}$$

3. Toxicity **is** dependent on a water characteristic

a. Slope = ____ (Table ____)

b. Aquatic chronic intercept = ____ (Table ____)

ln of aquatic chronic intercept =

c. FCV equation =

- B. Minimum 8 species requirement **is** met (Tier I)

1. Toxicity **is not** dependent on a water characteristic

a. FCV = ____ (Att. ____)

2. Toxicity **is** dependent on a water characteristic

a. Slope = ____ (Table ____)

b. Ranked genus mean chronic intercepts: Table ____

c. Final chronic intercept = ____ (Att. ____); ln of final chronic intercept =

d. FCV equation =