

### Rule 57 Aquatic Values Data Sheet

Chemical name: Acetonitrile  
CAS #: 75-05-8

Developed by: D. Bush  
Approved by: *B. D. ...*  
Approval date: 1/8/14  
Literature search date: 11/26/13

FAV: 230,000 ug/L (Tier 2)  
AMV: 120,000 ug/L (Tier 2)  
FCV: 13,000 ug/L (Tier 2)

#### ACUTE DATA

Species	Test type (EC or LC50)	Duration (hours)	Test conditions (FT,M, etc.)	Hardness mg/L	Chemical	LC50/EC50 ug/L	SMAV ug/L	GMAV ug/L	Rank	Refer
Fathead minnow ( <i>Pimephales promelas</i> )	LC50	96	FT,M			1,640,000	1,640,000	1,640,000	1	1
	LC50	96	S,U			1,000,000*				2
	LC50	96	S,U			1,000,000*				2
Guppy ( <i>Poecilia reticulata</i> )	LC50	96	S,U			1,650,000	1,650,000	1,650,000	2	2
Bluegill sunfish ( <i>Lepomis macrochirus</i> )	LC50	96	S,U			1,850,000	1,850,000	1,850,000	3	2
Water flea ( <i>Daphnia magna</i> )	LC50	48	SR,U			3,600,000	3,600,000	3,600,000	4	3

\* Values not used because FT,M test takes precedence over static tests.

## CHRONIC DATA

Species	Test type (ELS, etc.)	Duration (days)	Study Conditions (FT,M etc.)	Hardness mg/L	Chemical	MATC ug/L	SMCV ug/L	GMCV ug/L	Rank	Reference
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No useful chronic studies available.

### References:

1. Brooke, L.T., D.J. Call, D.L. Geiger, and C.E. Northcott. 1984. Acute Toxicities of Organic Chemicals to Fathead Minnows (*Pimephales promelas*), Vol. 1, Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, Superior, WI:414p.
2. Henderson, C., Q.H. Pickering, and A.E. Lemke. 1961. The effect of some organic cyanides (nitriles) on fish. In: Proc. 15th Ind. Waster Conf., Eng. Bull. Purdue Univ., Ser. No. 106, 65(2):120-130.
3. Tong, Z., Z. Huailan, and J. Hongjun. 1996. Chronic toxicity of acrylonitrile and acetonitrile to *Daphnia magna* in 14-d and 21-d toxicity tests. Bull. Environ. Contam. Toxicol. 57:655-659. (chronic study was unmeasured so not used)

### Studies of suitable duration but not used:

Ewell, W.S., J.W. Gorsuch, R.O. Kringle, K.A. Robillard, and R.C. Spiegel. 1986. Simultaneous evaluation of the acute effects of chemicals on seven aquatic species. Environ. Toxicol. Chem. 5(9):831-840. (results not used because multiple species exposed at the same time)

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

## Rule 57 Aquatic Values Work Sheet

Chemical Name: Acetonitrile  
 C.A.S. #: 75-05-8

### AQUATIC MAXIMUM VALUE CALCULATIONS

A. Minimum 8 species requirement is **not** met. Minimum requirements met = 4 (i, ii, iii, iv)  
 Minimum requirements missing for Tier I = 4 (v, vi, vii, viii)  
 Acute factor = 7

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

a. Final Acute Value (FAV) =  $1,640,000 \text{ ug/L} / 7 = 234,286 \text{ ug/L} = 230,000 \text{ ug/L}$

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) =  $FAV \div 2 = 234,286 \text{ ug/L} / 2 = 117,143 \text{ ug/L} = 120,000 \text{ ug/L}$

## FINAL CHRONIC VALUE CALCULATIONS

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

1. Acute to chronic ratio

a. Number ACRs meeting minimum data requirements = 0

b. Acute to chronic ratio = 18

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

$$\text{FCV} = \text{FAV} + \text{ACR} = 234,286 \text{ ug/L} / 18 = 13,016 \text{ ug/L} = 13,000 \text{ ug/L}$$

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

a. Slope = (Table \_\_)

b. Aquatic chronic intercept = (Table \_\_)

In 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. \_\_\_\_); In of final chronic intercept =

d. FCV equation =