Rule 57 Aquatic Values Data Sheet

Chemical name: Hydrazine
CAS #: 302-01-2

Developed by: D. Bush
Approved by: [signature]
Approval date: 1/31/12
Literature search date: 1/19/2012

FAV: 32 ug/L *(Tier: 2)*
AMV: 16 ug/L *(Tier: 2)*
FCV: 1.8 ug/L *(Tier: 2)*
Acute CF: ---- *Chronic CF:* ----

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	Reference
Water flea (*Daphnia magna*)	EC50	48	FT,M	50.3		280	280	221	1	1
Water flea	EC50	48	SR,M	NA		190	174			2
(*Daphnia pulex*)	EC50	48	SR,M	NA		160				2
Amphipod (*Gammarus pseudolimnaeus*)	LC50	96	FT,M	51.0		700	700	700	2	1
Channel catfish (*Ictalurus punctatus*)	LC50	96	S,M	106-113		1,000	1,000	1,000	3	6
Golden shiner (*Notemigonus crysoleucas*)	LC50	96	S,M	140-173		1,120	1,120	1,120	4	6
Bluegill	LC50	96	FT,M	160-190		1,600	1,243	1,243	5	3
(*Lepomis macrochirus*)	LC50	96	FT,M	160-190		1,000				3
	LC50	96	FT,M	160-190		1,200				3
	LC50	96	S,M	240-292		1,080*				4
Guppy	LC50	96	S,M	20-25		610	1,532	1,532	6	5
(*Lebistes reticulatus*)	LC50	96	S,M	400-500		3,850				

Fathead minnow	LC50	96	FT,M	NA	5,980	4,121	4,121	7	2
(*Pimephales promelas*)	LC50	96	FT,M	51.0	2,840				1
	LC50	96	S,M	52.9	2,250*				1

*value not used because FT,M tests take precedence over S, M 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

No Suitable Data Were Found.

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. Memo to Loren Larson from Larry Brooke, Center for Lake Superior Environmental Studies.

2.) Velte, J.S. 1984. Acute toxicity of hydrazine hydrate to the fathead minnow (*Pimephales promelas*) and Daphnid (*Daphnia pulex*). Bull. Environ. Contam. Toxicol. 33:598-604.

3.) Hunt, T.P., J.W. Fisher, J.M. Livingston, and M.E. Putnam. 1981. Temperature effects on hydrazine toxicity to bluegills. Bull. Environ. Contam. Toxicol. 27:588-595.

4.) Fisher, J.W., C.B. Harrah, and W.O. Berry. 1980. Hydrazine: Acute toxicity to bluegills and sublethal effects on dorsal light response and aggression. Trans. Amer. Fish. Soc. 109:304-309.

5.) Slonim, A.R. 1977. Acute toxicity of selected hydrazines to the common guppy. Wat. Res. 11:889-895.

6.) Fisher, J.W., D.S. Myers, and M.L. Meyers. 1980. The Effects of Selected Hydrazines upon Fish and Invertebrates. AMRL-TR-79-93, Tech. Rep. Aerosp. Med. Res. Lab., Wright-Patterson Air Force Base, OH: 25 p (insufficient information and control mortality in aquatic sowbug).

Reviewed, but not used:

1.) Slonim, A.R. 1986. Acute toxicity of some hydrazine compounds to salamander larvae, *Ambystoma spp*. Bull. Environ. Contam. Toxicol. 37:739-746 (mixture of two different species and low d.o. in some tests).

2.) Civil and Environmental Engineering Development Office. 1978. Proceedings of the Conference on Environmental Chemistry of Hydrazine Fue' CEEDO-TR-78-14, Proc. Conf. Environ. Chem. Hydrazine Fuels, Sept. 13, 1977, Tyndall AFB, FL: 176 p. (insufficient information based on summary provided in ECOTOX).

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: Hydrazine
C.A.S. #: 302-01-2

AQUATIC MAXIMUM VALUE CALCULATIONS

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

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

   a. FAV calculation: 221 ug/L/7 = 31.57 ug/L = 32 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. ___)

   ln of final acute intercept =

   d. FAV equation =

C. Aquatic Maximum Value (AMV) calculation: (221 ug/L/7)/2 = 15.79 ug/L = 16 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 (Table ___)

   b. Acute to chronic ratio = 18

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

   FCV = (221 ug/L/7)/18 = 1.75 ug/L = 1.8 ug/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 =