Rule 57 Aquatic Values Data Sheet

Chemical name: hydrogen peroxide
CAS #: 7722-84-1

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Approved by:
Approval date:
Literature search date: 3/12/2009

FAV: 180 ug/L *(Tier: 2)*
AMV: 92 ug/L *(Tier: 2)*
FCV: 10 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	Refere
Water flea (*Daphnia pulex*)	LC50	48	SR,M			2,400	2,400	2,400	1	1
Fathead minnow (*Pimephales promelas*)	LC50	96	SR,M			16,400	16,400	16,400	2	1

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 acceptable chronic studies were found.

References:

Shurtleff, L.E. 1989. Intertox America Sodium Percarbonate and Hydrogen Peroxide - Acute Toxicity to the Freshwater Invertebrate Daphnia pulex. Burlington Research, Inc.

Shurtleff, L.E. 1989. Intertox America Sodium Percarbonate and Hydrogen Peroxide - Acute Toxicity to the Freshwater Fish Pimephales promelas. Burlington Research, Inc.

References reviewed, but rejected:

Gaikowski, M.P., J.J. Rach, and R.T. Ramsay. 1999. Acute toxicity of hydrogen peroxide treatments to selected lifestages of cold-, and warmwater fish. Aquacult. 178:191-207. (Reject--inappropriate exposure period)

Kay, S.H., P.C. Quimby, Jr., and J.D. Ouzts. 1982. A potential algicide for aquaculture. Proc. Southern Weed Sci. Soc. 35:275-289. (Reject--insufficient details of study design, d.o. not measured, controls?, acclimated overnight, no replicates, unmeasured)

Meinertz, J.R., S.L. Greseth, M.P. Gaikowski, and L.J. Schmidt. 2008. Chronic toxicity of hydrogen peroxide to *Daphnia magna* in a continuous exposure, flow-through test system. Sci. Tot. Environ. 392:225-232. (Reject--effects on growth at lowest concentration and formulation used)

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: Hydrogen Peroxide
C.A.S. #: 7722-84-1

AQUATIC MAXIMUM VALUE CALCULATIONS

A. Minimum 8 species requirement is **not** met. Minimum requirements met = ___
Minimum requirements missing for Tier I =
Acute factor = ____

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

   a. FAV calculation FAV = 2,400 ug/L / 13 = 184.6 ug/L
   = 180 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:

AMV = 2,400 ug/L / 13 / 2 = 92.3 ug/L
= 92 ug/L

FINAL CHRONIC VALUE CALCULATIONS

A. Minimum 8 species requirement is **not** met (Tier II). Minimum requirements met = ___
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 = $\frac{2,400 \text{ ug/L}}{13} \div 18 = 10.3 \text{ ug/L} = 10 \text{ ug/L}$

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 =