

Rule 57 Aquatic Values Data Sheet

Chemical name: Chlorite
CAS #: 7758-19-2

Developed by: D. Bush

Approved by:

Approval date:

Literature search date: 1/5/2005

FAV: 13 ug/L

AMV: 6.5 ug/L

FCV: 0.72 ug/L

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

(Tier 1)
(Tier 1)
(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	Referen.
Water flea (<i>Ceriodaphnia dubia</i>)	LC50	48	FT,M	54		22	22	22	1	1
Water flea (<i>Daphnia magna</i>)	LC50	48	FT,M	54		26	32	32	2	1
	LC50	48	FT,M	57		39				2,3
Amphipod (<i>Hyalella azteca</i>)	LC50	96	FT,M	116		990	1,085	1,085	3	1
	LC50	96	FT,M	93		1,190				3
Crayfish (<i>Procambarus clarkii</i>)	LC50	96	FT,M	74		1,270	1,270	1,270	4	4
Planaria (<i>Dugesia tigrina</i>)	LC50	96	SR,U	74		1,340	1,340	1,340	5	4
Isopod (<i>Caecidotea communis</i>)	LC50	96	FT,M	74		1,570	1,570	1,570	6	4
Ostracod (<i>Cypridopsis vidua</i>)	LC50	48	SR,U	74		1,630	1,630	1,630	7	4
Hydra (<i>Hydra littoralis</i>)	LC50	48	FT,M	54		5,740	3,900	3,900	8	1
	LC50	48	FT,M	87		2,650				3

Catfish (<i>Ictalurus punctatus</i>)	LC50	96	FT,M	74	5,790	5,790	5,790	9	4
Copepod (<i>Acanthocyclops robustus</i>)	LC50	48	SR,U	74	6,740	6,740	6,740	10	4
Guppy (<i>Poecilia reticulata</i>)	LC50	96	FT,M	74	17,450	17,450	17,450	11	4
Rotifer (<i>Branchionus calyciflorus</i>)	LC50	24	S,M	54	16,980	21,601	21,601	12	1
	LC50	24	S,M	60	27,480				3
Worm (<i>Lumbriculus variegatus</i>)	LC50	96	FT,M	74	22,730	22,730	22,730	13	4
Mosquito larvae (<i>Culex pipiens</i>)	LC50	96	SR,U	74	44,290	44,290	44,290	14	4
Frog (<i>Rana pipiens</i>)	LC50	96	FT,M	74	65,690	65,690	65,690	15	4
Fathead minnow (<i>Pimephales promelas</i>)	LC50	96	FT,M	70	68,530	65,905	65,905	16	1
	LC50	96	FT,M	56	63,380				2,3
Bluegill (<i>Lepomis macrochirus</i>)	LC50	96	FT,M	70	83,900	66,772	66,772	17	1
	LC50	96	FT,M	54	53,140				3
Midge (<i>Chironomus tentans</i>)	LC50	48	FT,M	71	66,460	77,627	77,627	18	1
	LC50	48	FT,M	71	90,670				3
Toad (<i>Bufo americana</i>)	LC50	96	FT,M	74	149,600	149,600	149,600	19	4
Rainbow trout	LC50	96	FT,M	62	108,590	150,563	150,563	20	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
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No useful chronic studies available.

References:

- 1.) Burton, D.T. 1995. Acute Toxicity of Continuous and Intermittent Exposures of Chlorite to Freshwater Invertebrates and Fish. Report No. WREC-95-04. University of Maryland at College Park, Agricultural Experiment Station, Wye Research and Education Center.
- 2.) Fisher, D.J. and D.T. Burton. The Acute Effects of Continuous and Intermittent Application of Chlorine Dioxide and Chlorite on *Daphnia magna*, *Pimephales promelas*, and *Oncorhynchus mykiss*.
- 3.) Fisher, D.J. and D.T. Burton. 1995. Determination of Acute Water Quality Criterion for Continuous and Intermittent Exposure of Chlorite for Freshwater Organisms. Report No. WREC-95-03. University of Maryland at College Park, Agricultural Experiment Station, Wye Research and Education Center.
- 4.) Fisher, D.J. et al. 2003. Derivation of acute ecological risk criteria for chlorite in freshwater ecosystems. Water Research 37:4359-4368.

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: Chlorite
 C.A.S. #: 7758-19-2

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

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. ____ $FAV = 12.98661 \text{ ug/L} = 13 \text{ ug/L}$

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:

$$AMV = 12.98661 \text{ ug/L} \div 2 = 6.49 \text{ ug/L}$$

$$= 6.5 \text{ ug/L}$$

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 =

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

FCV =

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. ____) $FCV = 12.9866 \mu\text{g/L} \div 18 = 0.721 \mu\text{g/L}$

2. Toxicity is **dependent** on a water characteristic $= 0.72 \mu\text{g/L}$

a. Slope = ____ (Table ____)

b. Ranked genus mean chronic intercepts: Table ____

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

d. FCV equation =