MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 1 SUMMARY

A. Chemical: Chromium VI CAS# 7440473 Date April 5, 1989

B. Minnesota Criterion: ug/l (unless noted otherwise)

Water Class	Use	CC	MC	FAV	Basis*
1,2A	DW, Salmonid	10.8	15.7	31.5	EPA T1
1,2B,2C	DW, NonSalmonid	10.8	15.7	31.5	EPA T1
2B,2C	NonSalmonid	10.8	15.7	31.5	EPA T1
	Other				

Toxicity related to water quality: NO

If yes, above criteria values determined for: NA

Slope: Acute: Chronic:

Formulas:

MPCA: NA

EPA: CC: NA

MC:

FAV:

Notes:

C. EPA Criterion: ug/l CCC: 10.80 Basis: T1

Date: 1985 MC: 15.74 Basis: T1

FAV: 31.49 Basis: T1

Notes:

D. Other Criteria:

ug/l	value	Source
	50	IJC, total chromium, drinking water

E. Notes:

*Criteria basis codes for part B:

EPA = From EPA criterion
MPCA = Criterion developed by MPCA staff
T1 = Direct aquatic life toxicity, EPA criteria procedures used
T2 = Direct aquatic life toxicity, EPA advisory procedures used
Hs = Human health systemic effects
Hc = Human health carcinogenic effects
R = Tissue residue (bioaccumulation)
W = Wildlife effects
O = Organoleptic (taste and odor)
Other = Criterion based on other end point

MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 2 DIRECT AQUATIC LIFE TOXICITY
EPA Criterion Available

A. Chemical Chromium VI CAS# 7440473 Date April 5, 1989

B. EPA Criterion ug/l CCC: 10.80 Basis: T1
Date: 1985 MCC: 15.74
FAV: 31.49 Basis: T1

1. Related to water quality: NO

2. Toxicity FAV: 31.49 N: 27 ACR: 2.917
ug/l Chronic value: 10.80 N: -

3. Residue
FDA action level: NA
BCF Final: N total: N used:
geo mean at 1% lipid:
% lipid:
geo mean unadjusted for lipid:

C. MPCA Evaluation Of EPA Criterion
1. Four lowest GMAVs: 1. Daphnia 3. Ceriodaphnia
2. Simocephalus 4. Gammarus

2. Commercially or recreationally important species: NA

3. Plant data: OK

4. Extrapolation of water quality effects:

5. Chronic data No. of values: 10 for 8 species
ug/l No. below criterion: 4
Notes:
lowest chronic values: <10 D. Magna, 6.132 simocephalus
<2.5 D. Magna, vetulus
6.132 D. Pulex

6. ACRs ACR used by EPA: 2.917 N: 4
Geo. mean, all ACRs: 17.66 N: 9
ACR used by MPCA: 2.917 N: 4
Notes:
ACRs for sensitive Cladocera used for final ACR by EPA rather than geomean of all ACRs.

D. Cool/Warm Water Criterion ug/l same
No. of Salmonids deleted from lowest 4 GMAVs: None
N(nonsal): FAV: MC: CC:
Adjustments to FAV:
Notes:
No salmonids in lowest 4 GMAVs.

E. Summary of changes made to EPA criterion

No changes.

Page 4 HUMAN HEALTH

A. Chemical: Chromium VI CAS#: 7440-47-3 Date: April 5, 1989

B. EPA Human Health Criterion: df: 83 f: 1787 d: 50
ug/l
ADI/Ref.dose: 0.0025 mg/kg/day slope:
Final BCF: 16 %lipid:
K: 1

C. Minnesota Human Health Criterion

1. Ref.dose: 0.0048 mg/kg/day Source: MDH
K: 71% Source: MDH

2. Potency slope: NA Source:

3. Measured BAFs:

	Species/Tissue	BAF	%lipid	Norm. BAF
1.				
2.				
3.				
4.				
5.				
6.				
Geo mean:				

4. Measured BCFs

	Species/Tissue	BCF	%lipid	Norm. BCF
1.	Rainbow Trout/WB	1*	NA	
2.	Rainbow Trout/muscle	1.67	NA	
3.	Polychaete worm/-	217		
4.	Blue mussel/soft parts	192		
5.	Eastern Oyster/soft parts	125		
6.				
7.				
8.				
Geo mean:		54		

5. Edible portion BAF or BCF

	BAF	BCF
Cold water: 6.0 % lipid		
Warm water: 1.5 % lipid		

6. Geo mean unadjusted for lipid: BAF: BCF: 54

7. QSAR est. log p: BCF:
adjust. for % lipid:

8. BCF to BAF conversion factor: NA
9. Final BAF: 2A: 2B,2C:

10. Criteria: df(2A): 66 df(2B,2C): 66 f: 146 RAL: 120, total chrom.
ug/l

D. Organoleptic: NA Source:
ug/l

F. Notes:
Rainbow Trout WB BCF not used because other BCFs for edible portions.