MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 1 SUMMARY

A. Chemical: Endrin CAS# 72208 Date 1-31-90

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

Water Class	Use	CC	MC	FAV	Basis*
1,2A	DW, Salmonid	0.0039	0.09	0.18	EPA Hs M
1,2B,2C	DW, NonSalmonid	0.0155	0.09	0.18	EPA Hs M
2B,2C	NonSalmonid	0.0157	0.09	0.18	EPA Hs M
	Other				

Toxicity related to water quality: No
If yes, above criteria values determined for:
Slope: Acute: Chronic:

Formulas:
MPCA: NA
EPA: CC: NA
MC:
FAV:
Notes:

C. EPA Criterion: ug/l CCC: 0.0023 Basis: Residue
Date: 1980 MC: None Basis:
FAV: 0.18 Basis: tox
Notes:

D. Other Criteria:

ug/l	value	Source
	0.002	IJC

E. Notes:

*Criteria basis codes for part B:
EPA = From EPA criterion
PCA = Criterion developed by Minnesota Pollution Control Agency staff
T1 = Direct aquatic life toxicity, EPA national 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
M = Modified

MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 2 DIRECT AQUATIC LIFE TOXICITY
EPA Criterion Available

A. Chemical Endrin CAS# 72208 Date Dec. 1989

B. EPA Criterion ug/l CCC: 0.0023 Basis: Residue
Date: 1980 MCC:
FAV: 0.18 Basis: tox

1. Related to water quality: No

2. Toxicity FAV: 0.18 N: 28 ACR: 4.0
ug/l Chronic value: 0.045 N: -

3. Residue
FDA action level: 0.3 mg/kg
BCF Final: 132,400 N total: 4 N used: 4
geo mean at 1% lipid: 1324
% lipid: 100%
geo mean unadjusted for lipid: --

C. MPCA Evaluation Of EPA Criterion
1. Four lowest GMAVs: OK

2. Commercially or recreationally important species: NA

3. Plant data: OK

4. Extrapolation of water quality effects: NA

5. Chronic data No. of values: 4
ug/l No. below criterion: None
Notes:

6. ACRs ACR used by EPA: 4.0 N: 4
Geo. mean, all ACRs: 3.97 N: 4
ACR used by MPCA: NA N:
Notes:

D. Cool/Warm Water Criterion ug/l
No. of Salmonids deleted from lowest 4 GMAVs: NA
N(nonsal): FAV: MC: CC:
Adjustments to FAV:
Notes:
Recalculation not made because standard will be human health based.

E. Summary of changes made to EPA criterion

MINNESOTA POLLUTION CONTROL AGENCY AQUATIC LIFE CRITERIA

Page 4 HUMAN HEALTH

A. Chemical: Endrin CAS#: 72208 Date: 1-30-90

B. EPA Human Health Criterion: df: 1.0 f: None d: 1.0
ug/l
ADI/Ref.dose: 0.001 mg/kg/day slope:
Final BCF: 3970 %lipid: NA
K: 1

C. Minnesota Human Health Criterion

1. Ref.dose: 0.0003 mg/kg/day Source: MDH
K: 0.20 Source: MPCA

2. Potency slope: 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. Cyprinodon variegatus (sheepshead	4000	3.6	1111
2. minnow)			
3. Leiostomus xanthurus (spot)	1450	1.1	1318
4. Pimephales promelas (fathead minnow)	8367	3.7	2261
5.			
6.			
7.			
8.			
Geo mean:			1490

5. Edible portion BAF or BCF

	BAF	BCF
Cold water: 6.0 % lipid		8940
Warm water: 1.5 % lipid		2235

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

7. log Kow: 5.34 meas. QSAR Est. BCF:
adjust. for % lipid:

8. Parachor: 588

9. BCF to BAF conversion factor: 8,940 x 4.0 = 35,760; 2,235 x 4.0 = 8,940
4.0

10. Final BAF: 2A: 35,760 2B,2C: 8,940

11. Criteria: df(2A): 0.0039 df(2B,2C): 0.0155 f: 0.0157 RAL: 0.3
ug/l

D. Organoleptic: NA Source:
ug/l

F. Notes:

Table 5b. BIOCONCENTRATION DATA: 72208 1,2,3,4,10,10-HEXACHLORO-6,7-EPOXY-1,4,4A,5,6,7,8,8A-OCTAHYDRO -1,4-ENDO-ENDO-5,8-DIMETHANONAPHTHALENE
ENDRIN

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	BCF or BAF	Percent Lipid	Normalized BCF or BAF	Tissue Type	M d.	Ref No.
Cyprinodon variegatus Sheepshead minnow (embryo-juvenile)	BCF	SALT	33			4,050			WB		Schimmel, et al.,1975
Cyprinodon variegatus Sheepshead minnow	BCF	SALT	28,141 -161			4,000	3.6	1,111	WB		Hansen, et al., 1977 (% Lipid; Hanson 1980)
Ictaiurus punctatus Channel catfish	BCF	FRESH	41,55			1,820			WB		Argyle, et al., 1973
Jordanella floridae Flagfish	BCF	FRESH	65			15,000			WB		Hermanutz, 1978
Leiostomus xanthurus Spot	BCF	SALT	150- 240			1,450	1.1	1,318	WB		Lowe, 1966
Palaemonetes pugio Grass shrimp	BCF	SALT	145			1,600			Edible Portion		Tyler-Schroeder, 1979
Pimephales promelas Fathead minnow	BCF	FRESH	47,300			8,367	3.7	2,261	WB		Mount & Putnicki, 1966 Jarvinen & Tyo, 1978 (% Lipid; Jarvinen, 1980)