

Page 1 SUMMARY

A. Chemical: Trichloroethylene CAS# 79016 Date Dec. 1989

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

Water Class	Use	CC	MC	FAV	Basis*
1,2A	DW, Salmonid	25	6988	13976	PCA Hc
1,2B,2C	DW, NonSalmonid	25	6988	13976	PCA Hc
2B,2C	NonSalmonid	120	6988	13976	PCA Hc
	Other				

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

Formulas: \_\_\_\_\_ EPA:CC: NA  
MPCA: NA MC: \_\_\_\_\_  
FAV: \_\_\_\_\_

Notes: \_\_\_\_\_

C. EPA Criterion: ug/l CCC: \_\_\_\_\_ Basis: \_\_\_\_\_  
Date: None MC: \_\_\_\_\_ Basis: \_\_\_\_\_  
FAV: \_\_\_\_\_ Basis: \_\_\_\_\_

Notes: \_\_\_\_\_  
EPA human health criterion, see page 4.

D. Other Criteria:	value	Source
ug/l	No	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



Page 4 HUMAN HEALTH

A. Chemical: Trichloroethylene CAS#: 79016 Date: 11-15-89

B. EPA Human Health Criterion: df: 27 f: 807 d: \_\_\_\_\_

ug/l  
 ADI/Ref.dose: \_\_\_\_\_ mg/kg/day slope: 0.0126  
 Final BCF: 10.6 %lipid: 3  
 K: NA

C. Minnesota Human Health Criterion

1. Ref.dose: \_\_\_\_\_ mg/kg/day Source: \_\_\_\_\_  
 K: \_\_\_\_\_ Source: \_\_\_\_\_

2. Potency slope: 0.0112 Source: MDH

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.	<u>Lepomis macrochirus (Bluegill)</u>	<u>17</u>	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
Geo mean:		_____	_____	_____

5. Edible portion BAF or BCF  
 Cold water: 6.0 % lipid  
 Warm water: 1.5 % lipid

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

7. log Kow: 2.27 meas. \_\_\_\_\_ QSAR X Est. BCF: \_\_\_\_\_  
 adjust. for % lipid: \_\_\_\_\_

8. Parachor: 211

9. BCF to BAF conversion factor: NA

10. Final BAF: 2A: 17 2B,2C: 17

11. Criteria: df(2A): 24.9 df(2B,2C): 24.9 f: 120 RAL: 31.0  
 ug/l

D. Organoleptic: NA Source: \_\_\_\_\_  
 ug/l

F. Notes:

TABLE 1. ACUTE AND CHRONIC VALUES: 79016 TRICHLOROETHYLENE

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md	Ref No.
<i>Aedes aegypti</i> Mosquito	LC50	FRESH	2	NR	2	F		48000	U 10574
<i>Ambystoma mexicanum</i> Salamander	LC50	FRESH	2	S	2	F		48000	U 9740
<i>Anacystis aeruginosa</i> Blue-green algae	MOR	NR	NR	S	4	F		63000	U 2463
<i>Anacystis aeruginosa</i> Blue-green algae	PGR	NR	8	S	2	F		63000	U 15134
<i>Asellus aquaticus</i> Aquatic sowbug	LC50	FRESH	2	S	2	F		30000	U 15788
Bacillariophyceae Diatom class	PSE	SALT	2	F	2	F		500	U 5176
<i>Brachydanio rerio</i> Zebra danio, zebrafish	LC50	FRESH	2	F	2	F		60000	U 5938
<i>Carassius auratus</i> Goldfish	GRO	FRESH	15 - 180	S	4	F		100	U 12843
<i>Chilomonas paramecium</i> Cryptomonad	PGR	NR	2	NR	4	F		>40	U 5719
<i>Chironomus thummi</i> Midge	LC50	FRESH	2	S	2	F		64000	U 15788
<i>Cloeon dipterum</i> Mayfly	LC50	FRESH	2	S	2	F		42000	U 15788
<i>Corixa punctata</i> Water boatman	LC50	FRESH	2	S	2	F		110000	U 15788
<i>Culex pipiens</i> Mosquito	LC50	FRESH	2	NR	2	F		55000	U 1574
<i>Cyprinodon variegatus</i> Sheepshead minnow	LC50	SALT	4	S	2			52000	M 15005
<i>Daphnia magna</i> Water flea	EC50IM	FRESH	2	S	2	F		59 MM/M3	U 11926
<i>Daphnia magna</i> Water flea	LC50	FRESH	1	S	2	F		22000	U 5184

TABLE 1. TRICHLOROETHYLENE (CONTINUED)

Species Species	Latin Name Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md Ref No.
Daphnia magna Water flea		LC50	FRESH	1	S	2	F	>100	U 5718
Daphnia magna Water flea		LC50	FRESH	2	S	2	F	18000	U 5184
Daphnia magna Water flea		MOR	FRESH	2	S	2	F	2200	U 5184
Daphnia pulex Water flea		LC50	FRESH		S			51000	U Canton & Adema, 1978
Daphnia pulex Water flea		LC50	FRESH		S			39000	U Canton & Adema, 1978
Dugesia lugubris Turbellarian, planarian		LC50	FRESH	2	S	2	F	42000	U 15788
Dunaliella tertiolecta Green algae		PGR	NR	3	S	2	F	100	U 6770
Entosiphon sulcatum Flagellate euglenoid		PGR	NR	3	S	2	F	1200000	U 5303
Erpobdella octoculata Leech		LC50	FRESH	2	S	2	F	75000	U 15788
Gammarus pulex Scud		LC50	FRESH	2	S	2	F	24000	U 15788
Hydra oligactis Hydra		LC50	FRESH	2	NR	2	F	75000	U 1574
Hydra oligactis Hydra		LC50	FRESH	2	S	2	F	75000	U 15788
Ischnura elegans Dragonfly		LC50	FRESH	2	S	2	F	49000	U 15788
Lepomis macrochirus Bluegill		LC50	FRESH	1	S	2	F	>68000 - <100000	U 5590
Lepomis macrochirus Bluegill		LC50	FRESH	4	S	2	F	45000	U 5590
Lymnaea stagnalis Great pond snail		LC50	FRESH	2	NR	2	F	56000	U 1574
Lymnaea stagnalis Great pond snail		LC50	FRESH	2	S	2	F	56000	U 15788

TABLE 1. TRICHLOROETHYLENE (CONTINUED)

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md Ref No.
<i>Mysidopsis bahia</i> Opposum shrimp	LC50	SALT	4	S	2		14000	M 15005
<i>Nemoura cinerea</i> Stonefly	LC50	FRESH	2	S	2	F	70000	U 15788
<i>Oryzias latipes</i> Medaka, high-eyes	LC50	FRESH	2	NR	2	F	270000	U 1574
<i>Pimephales promelas</i> Fathead minnow	EC50IM	FRESH	1	F	1	F	23000	M 973
<i>Pimephales promelas</i> Fathead minnow	EC50IM	FRESH	2	F	1	F	22700	M 973
<i>Pimephales promelas</i> Fathead minnow	EC50IM	FRESH	3	F	1	F	22200	M 973
<i>Pimephales promelas</i> Fathead minnow	EC50IM	FRESH	4	F	1	F	21900	M 973
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	1	F	1	F	52400	M 973
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	1	F	2	F	58800	M 11227
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	2	F	1	F	53300	M 973
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	2	NR	2	F	47000	U 1574
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	2	F	2	F	57900	M 11227
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	3	F	1	F	39000	M 973
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	3	F	2	F	55400	M 11227
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	4	F	1	F	40700	M 973
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	4	S	1	F	66800	U 973
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	4	F	2	F	44100	M 1183
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	4	F	2	F	45000	M 11227
<i>Pimephales promelas</i> Fathead minnow	LC50	FRESH	4	F	5	F	44100	M 12447
<i>Salmo gairdneri</i> Rainbow trout, donaldson trout	LC50	FRESH	2	NR	2	F	42000	U 1574

TABLE 1. TRICHLOROETHYLENE (CONTINUED)

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md Ref No.
Scenedesmus abundans Green algae	EC50GR	FRESH	4	S	2	F	450000	U 11677
Scenedesmus quadricauda Green algae	MOR	NR	NR	S	4	F	>100	U 2463
Scenedesmus quadricauda Green algae	PGR	NR	NR	S	4	F	>100	U 7453
Scenedesmus quadricauda Green algae	PGR	NR	7	S	2	F	>1000000	U 5303
Scenedesmus quadricauda Green algae	PGR	NR	8	S	2	F	>1000000	U 15134
Scenedesmus subspicatus Algae	EC50		4				450000	U 11677
Selenastrum capricornutum Green algae	GR0	FRESH	4	NR	2	F	175000	U 10574
Skeletonoma costatum Diatom	EC50GR	SALT	4	S			95000	M 15005
Thalassiosira guillardii Diatom	PGR	NR	3	S	2	F	100	U 6770
Tubificidae Oligochaete family	LC50	FRESH	2	S	2	F	132000	U 15788
Xenopus laevis Clawed toad	LC50	FRESH	2	S	2	F	45000	U 9740

TABLE 2. CHRONIC VALUES: 79016 TRICHLOROETHYLENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Chronic Value (ug/l)	Md	Ref No.
<i>Carassius auratus</i>	GRO	FRESH	15 - 180	S	4	F		100	U 12843



Table 3a. GENUS MEAN ACUTE VALUES: 79016 TRICHLOROETHYLENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	SMAV (ug/l)	GMAV (ug/l)	Md	Ref No.
Tubificidae	LC50	FRESH	2	S	2	F	132000	132000	132000	U	15788
Xenopus laevis	LC50	FRESH	2	S	2	F	45000	45000	45000	U	9740
Salmo gairdneri	LC50	FRESH	2	NR	2	F	42000	42000	42000	U	10574
Pimephales promelas	LC50	FRESH	4	F	1	F	40700	37881	37881	M	973
Pimephales promelas	LC50	FRESH	4	F	5	F	44100			M	12447
Pimephales promelas	LC50	FRESH	4	F	2	F	44100			M	10183
Pimephales promelas	LC50	FRESH	4	F	2	F	45000			M	11227
Pimephales promelas	EC50IM	FRESH	4	F	1	F	21900			M	973
Mysidopsis bahia	LC50	SALT	4	S	2		52000	52000	52000	M	15005
Lymnaea stagnalis	LC50	FRESH	2	NR	2	F	56000	56000	56000	U	10574
Lymnaea stagnalis	LC50	FRESH	2	S	2	F	56000			U	15788
Lepomis macrochirus	LC50	FRESH	4	S	2	F	45000	45000	45000	U	5590
Hydra oligactis	LC50	FRESH	2	S	2	F	75000	75000	75000	U	15788
Hydra oligactis	LC50	FRESH	2	NR	2	F	75000			U	10574
Dugesia lugubris	LC50	FRESH	2	S	2	F	42000	42000	42000	U	15788
Daphnia magna	LC50	FRESH	2	S	2	F	18000	29177	36073	U	5184
Daphnia magna	EC50IM	FRESH	2	S	2	F	7759			U	11926
Daphnia magna	LC50	FRESH		S			85200			U	USEPA, 1978
Daphnia magna	LC50	FRESH		S			60905			U	Canton et al., 1978
Daphnia pulex	LC50	FRESH		S			51000	44598		U	Canton et al., 1978
Daphnia pulex	LC50	FRESH		S			39000			U	Canton et al., 1978
Cyprinodon variegatus	LC50	SALT	4	S	2		14000	14000	14000	M	15005

Table 3a. GENUS MEAN ACUTE VALUES: 79016 TRICHLOROETHYLENE (Continued)

Species Latin Name	Effect	FW/SW	Dur (days)	Ex R Ty C	Con Typ	Concentration (ug/l) Range	SMAV (ug/l)	GMAV (ug/l)	Md	Ref No.
<i>Culex pipiens</i>	LC50	FRESH	2	NR 2	F	55000	55000	55000	U	10574
<i>Corixa punctata</i>	LC50	FRESH	2	S 2	F	110000	110000	110000	U	15788
<i>Cloeon dipterum</i>	LC50	FRESH	2	S 2	F	42000	42000	42000	U	15788
<i>Aedes aegypti</i>	LC50	FRESH	2	NR 2	F	48000	48000	48000	U	10574

TABLE 3b. RANKED GENUS MEAN ACUTE VALUES: 79016 TRICHLOROETHYLENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	GMAV (ug/l)
Tubificidae	LC50	FRESH	2	S	132000
Corixa punctata	LC50	FRESH	2	S	110000
Hydra oligactis	LC50	FRESH	2	S	75000
Lymnaea stagnalis	LC50	FRESH	2	NR	56000
Culex pipiens	LC50	FRESH	2	NR	55000
Cyprinodon variegatus	LC50	SALT	4	S	52000
Aedes aegypti	LC50	FRESH	2	NR	48000
Lepomis macrochirus	LC50	FRESH	4	S	45000
Xenopus laevis	LC50	FRESH	2	S	45000
Dugesia lugubris	LC50	FRESH	2	S	42000
Salmo gairdneri	LC50	FRESH	2	NR	42000
Cloeon dipterum	LC50	FRESH	2	S	42000
Pimephales promelas	LC50	FRESH	4	F	37881
Daphnia sp	LC50	FRESH	2	S	36073
Mysidopsis bahia	LC50	SALT	4	S	14000

N: 15

FAV: 13976

TABLE 4. PLANT VALUES: 79016 TRICHLOROETHYLENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md	Ref No.
<i>Anacystis aeruginosa</i>	PGR	NR	8	S	2	F	63000	U	15134
<i>Anacystis aeruginosa</i>	MOR	NR	NR	S	4	F	63000	U	2463
Bacillariophyceae	PSE	SALT	2	F	2	F	500	U	5176
<i>Dunaliella tertiolecta</i>	PGR	NR	3	S	2	F	100	U	6770
<i>Scenedesmus abundans</i>	EC50GR	FRESH	4	S	2	F	450000	U	11677
<i>Scenedesmus quadricauda</i>	PGR	NR	NR	S	4	F	>1000000	U	7453
<i>Scenedesmus quadricauda</i>	PGR	NR	7	S	2	F	>1000000	U	5303
<i>Scenedesmus quadricauda</i>	PGR	NR	8	S	2	F	>1000000	U	15134
<i>Scenedesmus quadricauda</i>	MOR	NR	NR	S	4	F	>1000000	U	2463
<i>Scenedesmus subspicatus</i>	EC50		4				450000	U	11677
<i>Selenastrum capricornutum</i>	GRO	FRESH	4	NR	2	F	175000	U	10574
<i>Skeletonoma costatum</i>	EC50GR	SALT	4	S			95000	M	15005
<i>Thalassiosira guillardii</i>	PGR	NR	3	S	2	F	100	U	6770

Table 5a. BIOCONCENTRATION DATA: 79016 1,1,2-TRICHLOROETHYLENE

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	BCF	Percent Lipid	Tissue Type	M d.	Ref No.
Lepomis macrochirus Bluegill	BCF	FRESH	-1 14	F	2	17	WB	M	US EPA, 1978	