MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU
HUMAN & WILDLIFE TOXICITY SUMMARY

Chemical Name:	*trans*-1,3-Dichloropropylene	CAS No.:	10061-02-6
Derived By:	D. Bush	Literature Review Date:	9/12/07
Reviewed By:	A Perlmutter	Verification Date:	9/26/07

	Drinking Water	Nondrinking Water
Surface Water		
HNV (Tier 1)	930 ug/L	39,000 ug/L
HCV (Tier 1)	3.3 ug/L	140 ug/L
Screening Level		
Ground Water		
GW Noncancer		
GW Cancer		

HUMAN HEALTH INTERMEDIATE VALUES:

ADE	0.034 mg/kg/d
POTENCY	0.1029453 (mg/kg/d)-1
HH-BAF-TL$_3$	2.0 L/Kg
HH-BAF-TL$_4$	2.8 L/Kg

WV	
WV-BAF-TL$_3$	
WV-BAF-TL$_4$	

Comments: The HNV and HCV for *trans*-1,3-dichloropropylene were based on toxicity data for Telone II because no suitable toxicity data were available for this isomer. This was considered appropriate since Telone II consists of 90-98% *cis*- and *trans*-1,3-dichloropropylene. Data suggest that these two isomers have similar pharmacokinetics.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU
HUMAN NONCANCER VALUE WORKSHEET

Chemical Name: *trans*-1,3-Dichloropropylene
Developed By: D. Bush
Reviewed By: [signature]

CAS No.: 10061-02-6
Literature Review Date: 9/12/07
Verification Date: 9/26/07

Key Study: A NOAEL of 2.5 mg/kg/d was found in a two year dietary study in rats (Stott et al., 1995). Statistically significant increases in the incidence of forestomach histopathology was observed at 12.5 and 25 mg/kg/d in both sexes. EPA (2000) derived an RfD of 0.034 mg/kg/d using a benchmark dose of 3.4 mg/kg/d and an uncertainty factor of 100.

ADE = 0.034 mg/kg/d

$$ADE = \frac{3.4}{100}$$

Where UF = 10x each for inter- and intra-species extrapolation.

drinking water

$$HNV = \frac{0.034\ mg/kg/d \times (70\ kg) \times 0.8}{(2\ L/d) + (0.0036\ kg/d \times 2.0\ L/kg) + (0.0114\ kg/d \times 2.8\ L/kg)} = 0.9337\ mg/L$$

HNV for drinking water = 930 ug/L

non-drinking water

$$HNV = \frac{0.034\ mg/kg/d \times (70\ kg) \times 0.8}{(0.01\ L/d) + (0.0036\ kg/d \times 2.0\ L/kg) + (0.0114\ kg/d \times 2.8\ L/kg)} = 38.7622\ mg/L$$

HNV for non-drinking water = 39,000 ug/L

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU
HUMAN CANCER VALUE WORKSHEET

Chemical Name: *trans* -1,3-Dichloropropylene
Developed By: D. Bush
Reviewed By: A Perbeck

CAS No.: 10061-02-6
Literature Search Date: 9/12/07
Verification Date: 9/26/07

Key Study: NTP (1985) administered Telone II (92% 1,3-dichloropropylene per EPA (2000)) via gavage to groups of 50 male and 50 female B6C3F1 mice at doses of 0, 50, or 100 mg/kg, three times per week, for 104 weeks. The study found a dose-related statistically significant increase in the incidence of transitional cell carcinomas of the urinary bladder in females in both treatment groups.

HED (mg/kg/d)*	Tumors / Animals at Risk
0	0/50
2.88	8/50
5.81	21/47

* Dose averaged over 7 days/week and adjusted to a Human Equivalent Dose (HED) by multiplying by (animal body weight/human body weight)$^{1/4}$ and the % 1,3-dichloropropylene in the formulation (92%) (EPA, 2000).

GLOBAL 82 Results:

$$q^* = \frac{\text{95\% Upper Confidence Limit}}{\text{MLE}}$$

$$q^* = \frac{5.17586E\text{-}05}{5.02778E\text{-}04} \qquad \mathbf{q^* = 0.1029453\ (mg/kg/d)\text{-}1}$$

$$RAD = \frac{0.00001}{q^*} \qquad \mathbf{RAD = 0.000097139\ mg/kg/d}$$

$$HCV_{dw} = \frac{0.000097139\ mg/kg/d \times 70\ kg}{2.0\ L/d + [(0.0036\ kg/d \times 2.0\ L/kg) + (0.0114\ kg/d \times 2.8\ L/kg)]}$$

$HCV_{dw} = 0.003335$ mg/kg **$HCV_{dw} = 3.3\ \mu g/L$**

$$HCV_{non\text{-}dw} = \frac{0.000097139\ mg/kg/d \times 70\ kg}{0.01\ L/d + [(0.0036\ kg/d \times 2.0\ L/kg) + (0.0114\ kg/d \times 2.8\ L/kg)]}$$

$HCV_{non\text{-}dw} = 0.1384$ mg/kg **$HCV_{non\text{-}dw} = 140\ \mu g/L$**

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU
BIOACCUMULATION FACTOR WORKSHEET

Chemical Name: *trans* -1,3-Dichloropropylene
CAS No.: 10061-02-6
BAF Derived By: D. Bush
Literature Review Date: 9/12/07
BAF Reviewed By: [signature]
Verification Date: 9/26/07

HH-BAF-TL.3: 2.0 L/Kg
HH-BAF-TL.4: 2.8 L/Kg
WL-BAF-TL.3:
WL-BAF-TL.4:

I. FIELD BAFs, BSAFs, or LABORATORY BCFs

Ref #	BAF, BSAF, or BCF	Value	Species	Exposure Duration (days)	Tissue Type	Tissue Lipid (%)	Steady State Tissue Conc. ng/g	Water or Sed. (BSAF) Conc. µg/L

Final BAF:
Justification:

II. LOG Kow VALUES

Ref #	Meas./Calc. Log Kow	Method	Value	Meas./Calc. Log Kow	Method	Value
1.)	calculated	ClogP	1.76			

Final Log Kow: 1.76
Justification: This is the only value available.

Food Chain Multipliers
FCM-TL.3: 1.0
FCM-TL.4: 1.0

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU
BIOACCUMULATION FACTOR CALCULATIONS

Assessment/Calculations:

Baseline BAF = (FCM)(Kow)
Baseline $BAF_{TL3 \& TL4}$ = (1.0)(57.54399373)
Baseline $BAF_{TL3 \& TL4}$ = 57.54399373

NOTE: Since log Kow < 4, f_{fd} = 1.

HH BAF_{TL3} = [(Baseline BAF_{TL3})(0.0182) +1](f_{fd})
HH BAF_{TL3} = [(57.54399373)(0.0182) +1] (1)
HH BAF_{TL3} = 2.0 L/kg

HH BAF_{TL4} = [(Baseline BAF_{TL4})(0.0310) + 1](f_{fd})
HH BAF_{TL4} = [(57.54399373)(0.0310) +1](1)
HH BAF_{TL4} = 2.8 L/kg

References:

1.) EPA. 2007. Aster Ecotoxicity Profile. On-line database. Chemical file for *trans*-1,3-dichloro-propylene.