



## CHEMICAL UPDATE WORKSHEET

<b>Chemical Name:</b>	<b>Prometon</b>
<b>CAS #:</b>	<b>1610-18-0</b>
<b>Revised By:</b>	RRD Toxicology Unit
<b>Revision Date:</b>	August 19, 2015

### (A) Chemical-Physical Properties

	Part 201 Value	Updated Value	Reference Source	Comments
<b>Molecular Weight (g/mol)</b>	225.29	225.30	EPI	EXP
<b>Physical State at ambient temp</b>	Solid	Solid	MDEQ	
<b>Melting Point (°C)</b>	---	91.00	EPI	EXP
<b>Boiling Point (°C)</b>	---	NA	NA	
<b>Solubility (ug/L)</b>	7.50E+5	750000	EPI	EXP
<b>Vapor Pressure (mmHg at 25°C)</b>	0.00000339	2.30E-06	EPI	EXP
<b>HLC (atm-m<sup>3</sup>/mol at 25°C)</b>	1.98E-9	9.09E-10	PP	EST
<b>Log Kow (log P; octanol-water)</b>	2.99	2.99	EPI	EXP
<b>Koc (organic carbon; L/Kg)</b>	870	137.4	EPI	EST
<b>Ionizing Koc (L/kg)</b>		NR	NA	NA
<b>Diffusivity in Air (Di; cm<sup>2</sup>/s)</b>	0.08	5.13E-02	W9	EST
<b>Diffusivity in Water (Dw; cm<sup>2</sup>/s)</b>	8.0E-6	6.00E-06	W9	EST
<b>Soil Water Partition Coefficient (Kd; inorganics)</b>	NR	NR	NA	NA

	Part 201 Value	Updated Value	Reference Source	Comments
Flash Point (°C)	NA	NA	NA	NA
Lower Explosivity Level (LEL; unitless)	NA	NA	NA	NA
Critical Temperature (K)		NA	NA	NA
Enthalpy of Vaporization (cal/mol)		NA	NA	NA
Density (g/mL, g/cm <sup>3</sup> )		NA	NA	NA
EMSOFT Flux Residential 2 m (mg/day/cm <sup>2</sup> )	NA	2.30E-07	EMSOFT	EST
EMSOFT Flux Residential 5 m (mg/day/cm <sup>2</sup> )	NA	2.30E-07	EMSOFT	EST
EMSOFT Flux Nonresidential 2 m (mg/day/cm <sup>2</sup> )	NA	2.62E-07	EMSOFT	EST
EMSOFT Flux Nonresidential 5 m (mg/day/cm <sup>2</sup> )	NA	2.62E-07	EMSOFT	EST

**(B) Toxicity Values/Benchmarks**

	Part 201 Value	Updated Value	Source/Reference/Date	Comments/Notes/Issues
Reference Dose (RfD) (mg/kg/day)	2.2E-2	5.0E-2	OPP, 2008	
RfD details	<p>IRIS RfD = 1.5E-2 mg/kg-d; IRIS adjusted NOAEL = 15 mg/kg using conversion of 0.073 instead of 0.05; adjusted NOAEL = 21.9 mg/kg/1000 = 2.2E-2 mg/kg. Rat subchronic feeding study. Critical effects = no treatment related effects. UF = 1000, (Ciba Geigy, 1982a)</p>	<p><b>Tier 1 Source:</b>  <b>EPA-OPP:</b>  <b>Basis:</b> EPA-OPP is a Tier 1 source. The value is based on a chronic study and a more recent assessment (2008 and 2013); IRIS is based on a subchronic study and from 1992.  <b>OPP RED</b>                      (3/25/2008 &amp; 3/12/2012) <b>RfD = 0.05</b> mg/kg/day based on chronic dog study which is the primary critical study and the co-critical studies are a chronic rat and two-generation rat reproduction studies (appears to be one study).  <b>Critical Studies:</b></p> <ul style="list-style-type: none"> <li>Breckenridge, C.; Green, J. (1986) Prometon: Chronic Study in Dogs: Laboratory Study No. 100-84. Unpublished study prepared by Ciba-Geigy Corp. 540 p &amp; Tisdell, M. (1992) Additional Information Requested for Prometon: Chronic Study in Dogs. Unpublished study prepared by Ciba-Geigy Corp. p587.</li> <li>Salamon, C. (1987) Prometon Technical: Two-generation Reproduction Study in Rats: Laboratory Study No. 450-2208. Unpublished study prepared by American Biogenics Corp. 901 p.</li> </ul> <p><b>Methods:</b> dogs were fed 0, 5, 20 and 50 mg/kg/d prometon for 90-days  <b>End point or Point of Departure (POD):</b> NOAEL = 5 mg/kg/d; LOAEL = 20 mg/kg/d.  <b>Critical effect</b> = body weight change  <b>Uncertainty Factor</b> = 100; 10-fold for each inter- and intra-species variability  <b>Source and date:</b> EPA-OPP (3/25/2008 RED &amp; 3/12/2012 Memo)</p> <p><b>Tier 1 and 2 Sources:</b>  <b>IRIS: RfD = 1.5E-2 mg/kg-day.</b>  <b>Critical Study:</b> Per IRIS: Ciba-Geigy Corporation. 1982a. MRID No. 00129985, 00148609; HED Doc. No. 003700, 004781. Available from EPA. Write to FOI, EPA,</p>		Complete



	Part 201 Value	Updated Value	Source/Reference/ Date	Comments/Notes /Issues
		<p>Washington D.C. 20460.</p> <p><b>Method(s):</b> Sprague-Dawley rats; 30 rats/sex/group were fed diets containing 0, 10, 50, 100, and 300 ppm technical-grade prometon (98% active ingredient) for 90 days. No treatment-related effects were demonstrated at levels up to 300 ppm (HDT). Subchronic study.</p> <p><b>Critical effect:</b> No treatment related effects observed</p> <p><b>End point or Point of Departure (POD):</b> NOAEL = 15 mg/kg/day (300 ppm). LOAEL = none.</p> <p><b>Uncertainty Factors:</b> UF = 1000; 10-fold each for the inter- and intraspecies differences and for the lack of a chronic study</p> <p><b>Source and date:</b> IRIS; 1/1/1992</p> <p><b>PPRTV:</b> No PPRTV record available at this time.</p> <p><b>MRL:</b> No MRL record available at this time.</p> <p><b>Tier 3 Sources:</b></p> <p><b>MDEQ:</b> Per DEQ-CCD (5/30/1986), RfD = 0.022 mg/kg/day. (IRIS = 1.5E-2 mg/kg-d) IRIS adjusted NOAEL = 15 mg/kg using conversion of 0.073 instead of 0.05; adjusted NOAEL = 21.9 mg/kg/1000 = 2.2E-2 mg/kg. Rat subchronic feeding study. Critical effects = no treatment related effects. UF = 1000, (Ciba Geigy, 1982a)</p> <p><b>Minnesota DCH:</b> RfD= 100 mg/kg/day based on HRL 1993</p> <p><b>Texas CEQ:</b> RfD= 1.5E-02 mg/kg/day from IRIS</p> <p><b>RIVM:</b> RfD= 3, 00E-02 mg/kg bw from Indicative Pesticide Standards, 2014?</p>		
<b>Oral Cancer Slope Factor (CSF) (mg/kg-day)<sup>-1</sup></b>	--	NA	MDEQ, 2015	
<b>CSF details</b>	No RD entry in EPB-CCD (9/16/11). Per IRIS: a quantitative estimate of	<p><b>Carcinogen Weight-of-Evidence (WOE) Class:</b></p> <p>Per EPA-OPP (3/25/2008 &amp; 3/15/2012); Group D – not likely to be carcinogenic to humans”.</p> <p>Per IRIS (last revised 1/31/1987); This substance/agent has not undergone a complete evaluation and determination under US EPA’s IRIS program for evidence of human carcinogenic potential.</p>		Complete



	Part 201 Value	Updated Value	Source/Reference/Date	Comments/Notes/Issues
	carcinogenic risk from oral exposure is not available at this time (9/16/11). No PPRTV (11/28/11, 1/10/13).	<b>Tier 1 and 2 Sources:</b> <b>IRIS:</b> Per IRIS (last revised 1/31/1987), no value at this time. <b>EPA-OPP:</b> No value available. <b>PPRTV:</b> No PPRTV record available at this time. <b>MRL:</b> NA; MRLs are for non-cancer effects only.  <b>Tier 3 Source:</b> <b>MDEQ:</b> Per DEQ-CCD, no value at this time.		
<b>Reference Concentration (RfC) or Initial Threshold Screening Level (ITSL) (<math>\mu\text{g}/\text{m}^3</math>)</b>	--	NA	MDEQ, 2015	
<b>RfC/ITSL details</b>	No AQD entry available in EPB-CCD (9/16/11). No PPRTV (11/28/11, 1/10/13).	<b>Tier 1 and 2 Sources:</b> <b>IRIS:</b> Per IRIS (last revised 1/31/1987), no value at this time. <b>PPRTV:</b> PPRTV record available at this time. <b>MRL:</b> No MRL record available at this time.  <b>Tier 3 Source:</b> <b>MDEQ:</b> Per DEQ-CCD, no value at this time.		Complete
<b>Inhalation Unit Risk Factor (IURF) (<math>(\mu\text{g}/\text{m}^3)^{-1}</math>)</b>	--	NA	MDEQ, 2015	
<b>IURF details</b>	No AQD entry available in EPB-CCD (9/16/11). No PPRTV (11/28/11, 1/10/13).	<b>Carcinogen Weight-of-Evidence (WOE) Class:</b> Per EPA-OPP (3/25/2008 & 3/15/2012); Group D – not likely to be carcinogenic to humans” Per IRIS (last revised 1/31/1987); This substance/agent has not undergone a complete evaluation and determination under US EPA’s IRIS program for evidence of human carcinogenic potential.  <b>Tier 1 and 2 Sources:</b>		Complete



	Part 201 Value	Updated Value	Source/Reference/ Date	Comments/Notes /Issues
		<b>IRIS:</b> Per IRIS (last revised 1/31/1987), no value at this time. <b>EPA-OPP:</b> No value available. <b>PPRTV:</b> No PPRTV record available at this time. <b>MRL:</b> NA; MRLs are for non-cancer effects only.  <b>Tier 3 Source:</b> <b>MDEQ:</b> Per DEQ-CCD, no value at this time.		
Mutagenic Mode of Action (MMOA)? (Y/N)	--	NO	USEPA, 2015	
MMOA Details	--	<b>NA</b> Not listed as a carcinogen with mutagenic MOA in the USEPA OSWER List.		
Developmental or Reproductive Effector? (Y/N)	No	No, the RfD is not based on a reproductive-developmental effect.	MDEQ, 2015	
Developmental or Reproductive Toxicity Details	NA	NA		
State Drinking Water Standard (SDWS) (µg/L)	--	NO	SDWA, 1976	
SDWS details	NA	MI Safe Drinking Water Act (SDWA) 1976 PA 399		
Secondary Maximum Contaminant Level (SMCL) (µg/L)	--	NO	SDWA, 1976 and USEPA SMCL List	
SMCL details	NA	MI Safe Drinking Water Act (SDWA) 1976 PA 399 and USEPA SMCL List, 2015		
Is there an Aesthetic Value? (Y/N)	NO	Not evaluated.	NA	
Aesthetic value details	NA	NA		
Is there a Phytotoxicity	NO	Not evaluated.	NA	

	Part 201 Value	Updated Value	Source/Reference/ Date	Comments/Notes /Issues
Value? (Y/N)				
Phytotoxicity details	NA	NA		
Others:				

**(C) Chemical-specific Absorption Factors**

	Part 201 Value	Update	Source/Reference/ Dates	Comments/Notes /Issues
Gastrointestinal absorption efficiency value (ABS <sub>gi</sub> )	---	1.0	MDEQ, 2015/USEPA RAGS-E, 2004	
ABS <sub>gi</sub> details		RAGS E (USEPA, 2004) Default Value		
Skin absorption efficiency value (AE <sub>d</sub> )	---	0.1	MDEQ, 2015	
AE <sub>d</sub> details				
Ingestion Absorption Efficiency (AE <sub>i</sub> )		1.0	MDEQ, 2015	
AE <sub>i</sub> Details				
Relative Source Contribution for Water (RSC <sub>w</sub> )		0.2	MDEQ, 2015	
Relative Source Contribution for Soil (RSC <sub>s</sub> )		1.0	MDEQ, 2015	
Relative Source Contribution for Air (RSC <sub>A</sub> )		1.0	MDEQ, 2015	
Others				

**(D) Rule 57 Water Quality Values and GSI Criteria**

<b>Current GSI value (µg/L)</b>	NA
<b>Updated GSI value (µg/L)</b>	NA
<b>Rule 57 Drinking Water Value (µg/L)</b>	NA

	<b>Rule 57 Value (µg/L)</b>	<b>Verification Date</b>
<b>Human Non-cancer Values- Drinking water source (HNV-drink)</b>		
<b>Human Non-Cancer Values- Non-drinking water sources (HNV-Non-drink)</b>		
<b>Wildlife Value (WV)</b>		
<b>Human Cancer Values for Drinking Water Source (HCV-drink)</b>		
<b>Human Cancer values for non-drinking water source (HCV-Non-drink)</b>		
<b>Final Chronic Value (FCV)</b>		
<b>Aquatic maximum value (AMV)</b>		
<b>Final Acute Value (FAV)</b>		

Sources:

1. MDEQ Surface Water Assessment Section Rule 57 [website](#)
2. MDEQ Rule 57 [table](#)



**(E) Target Detection Limits (TDL)**

	<b>Value</b>	<b>Source</b>
<b>Target Detection Limit – Soil (<math>\mu\text{g}/\text{kg}</math>)</b>	200	MDEQ, 2015
<b>Target Detection Limit – Water (<math>\mu\text{g}/\text{L}</math>)</b>	50	MDEQ, 2015
<b>Target Detection Limit – Air (ppbv)</b>	NA	MDEQ, 2015
<b>Target Detection Limit – Soil Gas (ppbv)</b>	NA	MDEQ, 2015

**CHEMICAL UPDATE WORKSHEET ABBREVIATIONS:**

CAS # - Chemical Abstract Service Number.

**Section (A) Chemical-Physical Properties****Reference Source(s):**

CRC	Chemical Rubber Company Handbook of Chemistry and Physics, 95th edition, 2014-2015
EMSOFT	USEPA Exposure Model for Soil-Organic Fate and Transport (EMSOFT) (EPA, 2002)
EPA2001	USEPA (2001) Fact Sheet, Correcting the Henry's Law Constant for Soil Temperature. Office of Solid Waste and Emergency Response, Washington, D.C.
EPA4	USEPA (2004) User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. February 22, 2004.
EPI	USEPA's Estimation Programs Interface SUITE 4.1, Copyright 2000-2012
HSDB	Hazardous Substances Data Bank
MDEQ	Michigan Department of Environmental Quality
NPG	National Institute for Occupational Safety and Health Pocket Guide to Chemical Hazards
PC	National Center for Biotechnology Information's PubChem database
PP	Syracuse Research Corporation's PhysProp database
SCDM	USEPA's Superfund Chemical Data Matrix
SSG	USEPA's Soil Screening Guidance: Technical Background Document, Second Edition, 1996
USEPA/EPA	United States environmental protection agency's Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). July, 2004.

W9 USEPA's User Guide for Water9 Software, Version 2.0.0, 2001

**Basis/Comments:**

EST	estimated
EXP	experimental
EXT	extrapolated
NA	not available or not applicable
NR	not relevant

**Section (B) Toxicity Values/Benchmarks****Sources/References:**

ATSDR	Agency for Toxic Substances and Disease Registry
CALEPA	California Environmental Protection Agency
CAL DTSC	California Department of Toxic Substances Control
CAL OEHHA	CAEPA Office of Environmental Health Hazard Assessment
CCD	MDEQ Chemical Criteria Database
ECHA	European Chemicals Agency (REACH)
OECD HPV	Organization for Economic Cooperation and Development HPV Database
HEAST	USEPA's Health Effects Assessment Summary Tables
IRIS	USEPA's Integrated Risk Information System
MADEP	Massachusetts Department of Environmental Protection
MDEQ/DEQ	Michigan Department of Environmental Quality
DEQ-CCD/AQD	MDEQ Air Quality Division
DEQ-CCD/RRD	MDEQ Remediation and Redevelopment Division
DEQ-CCD/WRD	MDEQ Water Resources Division
MNDOH	Minnesota Department of Health

NJDEP	New Jersey Department of Environmental Protection
NYDEC	New York State Department of Environmental Conservation
OPP/OPPT	USEPA's Office of Pesticide Programs
PPRTV	USEPA's Provisional Peer Reviewed Toxicity Values
RIVM	The Netherlands National Institute of Public Health and the Environment
TCEQ	Texas Commission on Environmental Quality
USEPA	United States Environmental Protection Agency
USEPA OSWER	USEPA Office of Solid Waste and Emergency Response
USEPA MCL	USEPA Maximum Contaminant Level
WHO	World Health Organization
WHO IPCS	International Programme on Chemical Safety (IPCS/INCHEM)
WHO IARC	International Agency for Research on Cancers
NA	Not Available.
NR	Not Relevant.

**Toxicity terms:**

BMC	Benchmark concentration
BMCL	Lower bound confidence limit on the BMC
BMD	benchmark dose
BMDL	Lower bound confidence limit on the BMD
CSF	Cancer slope Factor
CNS	Central nervous system
IURF or IUR	Inhalation unit risk factor
LOAEL	Lowest observed adverse effect level
LOEL	Lowest observed effect level
MRL	Minimal risk level (ATSDR)
NOAEL	No observed adverse effect level
NOEL	No observed effect level

RfC	Reference concentration
RfD	Reference dose
p-RfD	Provisional RfD
aRfD	Acute RfD
UF	Uncertainty factor
WOE	Weight of evidence

**Section (C) Chemical-specific Absorption Factors**

MDEQ	Michigan Department of Environmental Quality
USEPA RAGS-E	United States Environmental Protection Agency's Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). July, 2004.

**Section (D) Rule 57 Water Quality Values and GSI Criteria**

GSI	Groundwater-surface water interface
NA	A value is not available or not applicable.
ID	Insufficient data to derive value
NLS	No literature search has been conducted