#### 4717.7860 HEALTH RISK LIMITS TABLE.

Subpart 1. **Generally.** This table lists the health risk limits derived from methods specified in parts 4717.7830, 4717.7840, and 4717.7850. For each chemical, this table specifies:

- A. the chemical name;
- B. the CAS number;
- C. the year the HRL was adopted;
- D. the volatility classification;
- E. any noncancer HRL;
- F. any cancer HRL;
- G. the RfD and RSC used in the derivation of any noncancer HRL;

H. the slope factor and any ADAF or  $AF_{lifetime}$  used in the derivation of any cancer HRL;

- I. the intake rate used in the derivation of any noncancer or cancer HRL; and
- J. the health endpoints.

#### Subp. 2. Explanation of table in this part.

- A. "-" symbol means not relevant.
- B. "NA" means not applicable.
- C. "ND" means not derived due to absence or paucity of toxicity information.
- D. "None" means not applicable for inclusion in the health risk index.
- E. The following explanations in subitems (1) to (3) apply where noted:

(1) The acute HRL value is less than the calculated HRL. To be protective of acute exposures, the HRL is set equal to the acute HRL value.

(2) The short-term HRL value is less than the calculated HRL. To be protective of short-term exposures, the HRL is set equal to the short-term HRL value.

(3) The subchronic HRL value is less than the calculated HRL. To be protective of subchronic exposures, the HRL is set equal to the subchronic HRL value.

#### Subp. 2a. Acetaminophen.

CAS number: 103-90-2 Year Adopted: 2015

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	200	200	200 (2)	200 (2)	NA
RfD	0.25	0.25	(2)	(2)	_
(mg/kg-day)					
RSC	0.2	0.2	(2)	(2)	_
SF (per	_	_	_	_	_
mg/kg-day)					
ADAF or	_	_	_	_	_
AF <sub>lifetime</sub>					
Intake Rate	0.289	0.289	(2)	(2)	_
(L/kg-day)					
Endpoints	hepatic (liver)	hepatic (liver)	hepatic (liver)	hepatic (liver)	—
	system	system	system	system	

Subp. 3. Acetochlor.

CAS number: 34256-82-1 Year Adopted: 2009 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	40	40	40 (2)	9	NA
RfD (mg/kg-day)	0.021	0.021	(2)	0.002	-
RSC	0.5	0.5	(2)	0.2	_
SF (per mg/kg-day)		_	_		—
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_

Intake Rate (L/kg-day)	0.289	0.289	(2)	0.043	_
Endpoints	developmental	developmental	developmental	hepatic (liver) system, male reproductive system, nervous system, renal (kidney) system, respiratory system	_

Subp. 3a. Acetochlor ESA.

CAS number: 187022-11-3 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	600	600	300	NA
RfD (mg/kg-day)	_	0.37	0.23 0.075		—
RSC	_	0.5	0.2	0.2	—
SF (per mg/kg-day)	_	-	-	_	—
ADAF or AF <sub>lifetime</sub>	_	_	_	-	—
Intake Rate (L/kg-day)	_	0.289	0.077	0.043	—
Endpoints	_	thyroid (E)	thyroid (E)	thyroid (E)	_

Subp. 3b. Acetochlor OXA.

CAS number: 184992-44-4 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic Chronic		Cancer
HRL (µg/L)	ND	200	200	100	NA
RfD	—	0.12	0.077	0.026	-
(mg/kg-day)					
RSC	_	0.5	0.2	0.2	_
SF (per mg/kg-day)	_	_	_	_	—
ADAF or AF <sub>lifetime</sub>	_	_	_	_	-
Intake Rate (L/kg-day)	_	0.289	0.077	0.043	_
Endpoints	_	thyroid (E)	thyroid (E)	thyroid (E)	_

Subp. 3c. Acetone.

CAS number: 67-64-1 Year Adopted: 2011 Volatility: Moderate

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	9,000	8,000	4,000	NA
RfD	_	5.0	3.0	0.90	_
(mg/kg-day)					
RSC	—	0.5	0.2	0.2	_
SF (per	_	_	_	_	_
mg/kg-day)					
ADAF or	_	_	_	_	_
AF <sub>lifetime</sub>					
Intake Rate	_	0.289	0.077	0.043	_
(L/kg-day)					
Endpoints	—	renal (kidney)	renal (kidney)	renal (kidney)	—
		system	system,	system,	
			hematological	hematological	
			(blood) system	(blood) system	

#### Subp. 3d. 6-Acetyl-1,1,2,4,4,7-hexamethyltetraline (AHTN).

CAS number: 21145-77-7 or 1506-02-1 Year Adopted: 2013 Volatility: Moderate

	Acute	Short-term	Subchronic Chronic		Cancer
HRL (µg/L)	ND	100	30	20	NA
RfD (mg/kg-day)	_	0.070	0.011	011 0.0037	
RSC	-	0.5	0.2	0.2	
SF (per mg/kg-day)	_	_	_		
ADAF or AF <sub>lifetime</sub>	_	_	_	_	Ι
Intake Rate (L/kg-day)	_	0.289	0.077	0.043	-
Endpoints	_	hepatic (liver) system	hepatic (liver) system	hepatic (liver) system	_

Subp. 3e. Acrylamide.

CAS number: 79-06-1 Year Adopted: 2015 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	7	7 (2)	7 (2)	0.2
RfD (mg/kg-day)	-	0.010	(2)	(2)	_
RSC		0.2	(2)	(2)	—
SF (per mg/kg-day)	-	_	_	_	0.5
ADAF or AF <sub>lifetime</sub>	_	_	_	_	$ \begin{array}{c} 10 \ (\text{ADAF}_{<2}) \\ 3 \ (\text{ADAF}_{2 \ \text{to} < 16}) \\ 1 \ (\text{ADAF}_{16+}) \end{array} $

Intake Rate (L/kg-day)	_	0.289	(2)	(2)	$\begin{array}{c} 0.137_{(<2)}\\ 0.047_{(2 \text{ to } <16)}\\ 0.039_{(16+)}\end{array}$
Endpoints	_	developmental, male reproductive system, nervous system	developmental, male reproductive system, nervous system	developmental, male reproductive system, nervous system	cancer

Subp. 4. Alachlor.

CAS number: 15972-60-8 Year Adopted: 2009 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	200	30	5	NA
RfD	_	0.1	0.01	0.001	_
(mg/kg-day)					
RSC	_	0.5	0.2	0.2	_
SF (per	_	_	_	_	_
mg/kg-day)					
ADAF or	_	_	_	_	_
AF <sub>lifetime</sub>					
Intake Rate	_	0.289	0.077	0.043	_
(L/kg-day)					
Endpoints	_	renal (kidney)	hepatic (liver)	hepatic (liver)	_
		system	system,	system,	
			hematological	hematological	
			(blood) system	(blood) system	

Subp. 5. Atrazine.

CAS number: 1912-24-9 Year Adopted: 2009

# Volatility: Nonvolatile MCL-based HRL: 3 µg/L

### Subp. 5a. Bentazon.

CAS number: 25057-89-0

Year Adopted: 2015

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	400	60	50	30	NA
RfD	0.22	0.033	0.020	0.0060	—
(mg/kg-day)					
RSC	0.5	0.5	0.2	0.2	_
SF (per	_	_	_	_	_
mg/kg-day)					
ADAF or	_	_	_	_	-
AF <sub>lifetime</sub>					
Intake Rate	0.289	0.289	0.077	0.043	_
(L/kg-day)					
Endpoints	developmental,	developmental	hematological	thyroid	_
	female		(blood) system		
	reproductive				
	system				

Subp. 6. Benzene.

CAS number: 71-43-2 Year Adopted: 2009 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	10	10	3	3 (3)	2
RfD	0.015	0.014	0.0013	(3)	_
(mg/kg-day)					
RSC	0.2	0.2	0.2	(3)	_

SF (per mg/kg-day)	_	_	_	_	0.055
ADAF	_	_	_	_	10 (ADAF <sub>&lt;2</sub> )
					$3 (ADAF_{2 \text{ to } < 16})$
					1 (ADAF <sub>16+</sub> )
Intake Rate	0.289	0.289	0.077	(3)	0.137 (<2)
(L/kg-day)					0.047 (2 to <16)
					0.039 (16+)
Endpoints	develop- mental	hemato- logical	hemato- logical	hemato- logical	cancer
		(blood)	(blood)	(blood)	
		system,	system,	system,	
		immune	immune	immune	
		system	system	system	

Subp. 6a. [Renumbered subp 6f]

Subp. 6b. [Renumbered subp 6g]

## Subp. 6c. Bisphenol A (BPA).

CAS number: 80-05-7 Year Adopted: 2015 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	100	20	20 (3)	NA
RfD (mg/kg-day)	_	0.16	0.0065	(3)	_
RSC	_	0.2	0.2	(3)	_
SF (per mg/kg-day)	_	-	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	-

Intake Rate (L/kg-day)	_	0.289	0.077	(3)	—
Endpoints		developmental, female reproductive system (E), hepatic (liver) system, male reproductive system (E), renal (kidney) system, thyroid (E)	system, renal (kidney) system	hepatic (liver) system, renal (kidney) system	_

Subp. 6d. Butyl benzyl phthalate.

CAS number: 85-68-7 Year Adopted: 2015 Volatility: Low

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	100	100	100 (2)	100 (2)	NA
RfD (mg/kg-day)	0.15	0.15	(2)	(2)	—
RSC	0.2	0.2	(2)	(2)	_
SF (per mg/kg-day)	_	_	_		_
ADAF or AF <sub>lifetime</sub>	_	_	-	_	—
Intake Rate (L/kg-day)	0.289	0.289	(2)	(2)	-
Endpoints	developmental (E)	developmental (E)	developmental (E)	developmental (E)	_

Subp. 6e. Cadmium.

CAS number: 7440-43-9 Year Adopted: 2015

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	5	1	1	0.5	NA
RfD	0.0077	0.0016	0.00044	0.00011	_
(mg/kg-day)					
RSC	0.2	0.2	0.2	0.2	_
SF (per	_	_	_	—	_
mg/kg-day)					
ADAF or	_	_	_	_	_
AF <sub>lifetime</sub>					
Intake Rate	0.289	0.289	0.077	0.043	_
(L/kg-day)					
Endpoints	developmental	developmental,	developmental,	renal (kidney)	_
		nervous system,	skeletal	system, skeletal	
		renal (kidney)			
		system			

## Subp. 6f. Carbamazepine.

CAS number: 298-46-4 Year Adopted: 2013 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	40	40	40 (2)	40 (2)	NA
RfD (mg/kg-day)	0.013	0.013	(2)	(2)	_
RSC	0.8	0.8	(2)	(2)	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_

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Intake Rate	0.289	0.289	(2)	(2)	_
(L/kg-day)					
(L/kg-day) Endpoints	develop- mental, nervous system	(blood) system,	develop- mental, hematological (blood) system, hepatic (liver) system, immune system, nervous system, male reproductive system (E), female	(blood) system,	
		reproductive	reproductive	reproductive	
		system (E), thyroid (E)	system (E), thyroid (E)	system (E), thyroid (E)	

Subp. 6g. Carbon tetrachloride.

CAS number: 56-23-5 Year Adopted: 2013 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	100	3	3 (2)	3 (2)	1
RfD (mg/kg-day)	0.18	0.0037	(2)	(2)	_
RSC	0.2	0.2	(2)	(2)	_
SF (per mg/kg-day)	—	_	_	_	0.07
ADAF or AF <sub>lifetime</sub>	_	_	_	_	10 (ADAF <sub>&lt;2</sub> )
					3 (ADAF <sub>2 to &lt;16</sub> ) 1 (ADAF <sub>16+</sub> )

Intake Rate (L/kg-day)	0.289	0.289	(2)	(2)	$\begin{array}{c} 0.137 \\ (<2) \end{array}$ $\begin{array}{c} 0.047 \\ (2 \text{ to } <16) \end{array}$ $\begin{array}{c} 0.039 \\ (16\pm) \end{array}$
Endpoints	develop- mental, hepatic (liver) system	hepatic (liver) system	hepatic (liver) system	hepatic (liver) system	( - )

## Subp. 7. Chloroform.

CAS number: 67-66-3 Year Adopted: 2009 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	30	30 (2)	30 (2)	NA
RfD	_	0.05	(2)	(2)	_
(mg/kg-day)					
RSC	_	0.2	(2)	(2)	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	-
Intake Rate (L/kg-day)	_	0.289	(2)	(2)	-
Endpoints	_	developmental, hepatic (liver) system, immune system	developmental, hepatic (liver) system, immune system, male	developmental, hepatic (liver) system, immune system, male	_
		System	reproductive system	reproductive system	

Subp. 8. Cyanazine.

CAS number: 21725-46-2 Year Adopted: 2009 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	2	2	2	1	NA
RfD (mg/kg-day)	0.001	0.001	0.00063	0.00026	-
RSC	0.5	0.5	0.2	0.2	_
SF (per mg/kg-day)	_	-	-	_	_
ADAF or AF <sub>lifetime</sub>	_	-	-	_	_
Intake Rate (L/kg-day)	0.289	0.289	0.077	0.043	_
Endpoints	developmental	developmental	hepatic (liver) system, renal (kidney) system	None	_

- Subp. 8a. [Renumbered subp 8f]
- Subp. 8b. [Renumbered subp 8g]
- Subp. 8c. [Renumbered subp 8h]
- Subp. 8d. [Renumbered subp 8i]
- Subp. 8e. Dibutyl phthalate.

CAS number: 84-74-2 Year Adopted: 2015 Volatility: Low

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	20	20	20 (2)	20 (2)	NA
RfD	0.023	0.023	(2)	(2)	_
(mg/kg-day)					

RSC	0.2	0.2	(2)	(2)	—
SF (per	_	_	-	_	-
mg/kg-day)					
ADAF or	_	_	_	_	_
AF <sub>lifetime</sub>					
Intake Rate	0.289	0.289	(2)	(2)	_
(L/kg-day)					
Endpoints	developmental	developmental	developmental	developmental	_
	(E)	(E)	(E)	(E)	

### Subp. 8f. Dichlorodifluoromethane.

CAS number: 75-71-8 Year Adopted: 2011 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	ND	700	NA
RfD (mg/kg-day)	_	_	_	0.15	_
RSC	_	_	_	0.2	—
SF (per mg/kg-day)	_	-	-	_	-
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_
Intake Rate (L/kg-day)	_	_	_	0.043	-
Endpoints	_	_	_	None	_

### Subp. 8g. 1,2-Dichloroethane.

CAS number: 107-06-2 Year Adopted: 2013 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	200	200 (2)	60	1
RfD (mg/kg-day)	_	0.23	(2)	0.012	_
RSC	_	0.2	(2)	0.2	_
SF (per mg/kg-day)	—	_	_	_	0.091
ADAF or AF <sub>lifetime</sub>	_	_	_	_	10 (ADAF <sub>&lt;2</sub> ) 3 (ADAF <sub>2 to &lt;16</sub> ) 1 (ADAF <sub>16+</sub> )
Intake Rate (L/kg-day)	_	0.289	(2)	0.043	$\begin{array}{c} 0.137 \\ (<2) \\ 0.047 \\ (2 \text{ to } <16) \\ 0.039 \\ (16+) \end{array}$
Endpoints	_	hepatic (liver) system	hepatic (liver) system	renal (kidney) system, hepatic (liver) system	· · · ·

### Subp. 8h. trans-1,2-Dichloroethene.

CAS number: 156-60-5 Year Adopted: 2013 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	200	40	NA
RfD (mg/kg-day)	Ι	-	0.091	0.0091	_
RSC		_	0.2	0.2	_
SF (per mg/kg-day)		_	_	_	_

ADAF or AF <sub>lifetime</sub>	_	_	-	_	-
Intake Rate (L/kg-day)	_	_	0.077	0.043	_
Endpoints		Ι	immune system	immune system	—

Subp. 8i. 1,1-Dichloroethylene.

CAS number: 75-35-4 Year Adopted: 2011 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	200	200	NA
RfD (mg/kg-day)	_	_	0.090	0.046	_
RSC		-	0.2	0.2	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_
Intake Rate (L/kg-day)	_	_	0.077	0.043	—
Endpoints	_	_	hepatic (liver) system	hepatic (liver) system	_

Subp. 9. cis 1,2-Dichloroethylene.

CAS number: 156-59-2 Year Adopted: 2009 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	70	70 (2)	50	NA
RfD	_	0.097	(2)	0.011	_
(mg/kg-day)					

RSC		0.2	(2)	0.2	_
SF (per mg/kg-day)	Ι	_	_	_	_
ADAF or AF <sub>lifetime</sub>	Ι	_	_	_	—
Intake Rate (L/kg-day)	Ι	0.289	(2)	0.043	—
Endpoints	_	hematological (blood) system	hematological (blood) system	hematological (blood) system	_

### Subp. 10. Dichloromethane.

CAS number: 75-09-2 Year Adopted: 2009 Volatility: High MCL-based HRL: 5 µg/L

### Subp. 11. Dieldrin.

CAS number: 60-57-1 Year Adopted: 2009 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	0.2	0.2	0.2 (2)	0.2	0.006
RfD (mg/kg-day)	0.0001	0.0001	(2)	0.00005	—
RSC	0.5	0.5	(2)	0.2	_
SF (per mg/kg-day)	_	_	_	_	16
AF <sub>lifetime</sub>	_	_	_	_	2.5

Intake Rate (L/kg-day)	0.289	0.289	(2)	0.043	0.043
Endpoints	developmental	developmental, immune system, nervous system	developmental, immune system, nervous system	hepatic (liver) system, nervous system	cancer

Subp. 11a. [Renumbered subp 11d]

Subp. 11b. [Renumbered subp 11f]

#### Subp. 11c. Di(2-ethylhexyl) phthalate (DEHP).

CAS number: 117-81-7

Year Adopted: 2015

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	20	20	20 (2)	20 (2)	7
RfD (mg/kg-day)	0.029	0.029	(2)	(2)	_
RSC	0.2	0.2	(2)	(2)	_
SF (per mg/kg-day)	-	-	—	Ι	0.014
ADAF or AF <sub>lifetime</sub>			_		$10 (ADAF_{<2}) 3 (ADAF_{2 \text{ to } <16}) 1 (ADAF_{16+})$
Intake Rate (L/kg-day)	0.289	0.289	(2)	(2)	$\begin{array}{c} 0.137_{(<2)}\\ 0.047_{(2 \text{ to } <16)}\\ 0.039_{(16+)}\end{array}$
Endpoints	develop- mental (E), male reproductive system (E)	develop- mental (E), male reproductive system (E)	develop- mental (E), male reproductive system (E)	develop- mental (E), male reproductive system (E)	cancer

Subp. 11d. N,N-Diethyl-meta-toluamide (DEET).

CAS number: 134-62-3 Year Adopted: 2013 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	200	200 (2)	200 (2)	NA
RfD (mg/kg-day)	_	0.23	(2)	(2)	—
RSC	_	0.2	(2)	(2)	_
SF (per mg/kg-day)	_	_	_	_	—
ADAF or AF <sub>lifetime</sub>	_	_	_	-	—
Intake Rate (L/kg-day)	_	0.289	(2)	(2)	_
Endpoints	_	developmental, nervous system	developmental, nervous system	developmental, nervous system	—

### Subp. 11e. Dimethenamid and Dimethenamid-p.

CAS numbers: 87674-68-8 and 163515-14-8

Year Adopted: 2015

Volatility: Moderate

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	600	600 (2)	300	NA
RfD (mg/kg-day)	_	0.34	(2)	0.060	—
RSC	_	0.5	(2)	0.2	_
SF (per mg/kg-day)	_	_	_	_	—
ADAF or AF <sub>lifetime</sub>	_	_	_	_	-

Intake Rate (L/kg-day)	_	0.289	(2)	0.043	-
Endpoints		(liver) system,	developmental, female reproductive system, hepatic (liver) system, nervous system	hepatic (liver) system	_

Subp. 11f. 1,4-Dioxane.

CAS number: 123-91-1

Year Adopted: 2013

Volatility: Low

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	300	100	1
RfD (mg/kg-day)	_	_	0.12	0.025	_
RSC			0.2	0.2	_
SF (per mg/kg-day)	_	_	_	_	0.1
ADAF or AF <sub>lifetime</sub>	_	_	_	_	10 (ADAF <sub>&lt;2</sub> )
					3 (ADAF <sub>2 to &lt;16</sub> ) 1 (ADAF <sub>16+</sub> )
Intake Rate (L/kg-day)	_	_	0.077	0.043	$\begin{array}{r} 0.137_{(<2)}\\ 0.047_{(2 \text{ to } <16)}\\ 0.039_{(16+)}\end{array}$
Endpoints	_	_	hepatic (liver) system, renal (kidney) system, respiratory system	hepatic (liver) system, renal (kidney) system, respiratory system	cancer

Subp. 12. [Repealed, 40 SR 689]

### Subp. 12a. Ethylbenzene.

CAS number: 100-41-4 Year Adopted: 2011 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	50	50 (2)	50 (2)	NA
RfD	_	0.075	(2)	(2)	_
(mg/kg-day)					
RSC	—	0.2	(2)	(2)	—
SF (per mg/kg-day)	_	-	-	_	-
ADAF or AF <sub>lifetime</sub>	-	_	_	-	_
Intake Rate	_	0.289	(2)	(2)	_
(L/kg-day)					
Endpoints	—	hepatic (liver)	hepatic (liver)	hepatic (liver)	—
		system, renal	system, renal	system, renal	
		(kidney)	(kidney)	(kidney)	
		system	system	system	

Subp. 12b. Ethylene glycol.

CAS number: 107-21-1 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	4,000	4,000	2,000	2,000	NA
RfD (mg/kg-day)	0.76	0.76	0.72	0.50	_
RSC	0.2	0.2	0.2	0.2	_
SF (per mg/kg-day)	_	_	_	_	_

ADAF or AF <sub>lifetime</sub>	_	_	_	_	-
Intake Rate (L/kg-day)	0.043	0.043	0.077	0.043	-
Endpoints	developmental	developmental	system,	renal (kidney) system, developmental	_

### Subp. 12c. Metolachlor and S-Metolachlor.

CAS number: 51218-45-2; 87392-12-9 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	400	400	300	300 (3)	NA
RfD	0.24	0.24	0.097	(3)	_
(mg/kg-day)					
RSC	0.5	0.5	0.2	(3)	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_
Intake Rate (L/kg-day)	0.289	0.289	0.077	(3)	_
Endpoints	developmental	developmental	none	none	_

#### Subp. 12d. Metolachlor ESA.

CAS number: 171118-09-5 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	4,000	800	NA

RfD (mg/kg-day)	_		1.7	0.17	_
RSC	_	-	0.2	0.2	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	-
Intake Rate (L/kg-day)	_	_	0.077	0.043	_
Endpoints	_	_	hepatic (liver) system	hepatic (liver) system	—

Subp. 12e. Metolachlor OXA.

CAS number: 152019-73-3 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	3,000	3,000 (2)	800	NA
RfD (mg/kg-day)	_	1.7	(2)	0.17	_
RSC	_	0.5	(2)	0.2	_
SF (per mg/kg-day)	_	-	_	_	-
ADAF or AF <sub>lifetime</sub>	_	_	_	_	-
Intake Rate (L/kg-day)	_	0.289	(2)	0.043	_
Endpoints	_	none	none	none	_

Subp. 12f. Metribuzin.

CAS number: 21087-64-9 Year Adopted: 2013 Volatility: Low

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	30	10	10 (2)	10 (2)	NA
RfD (mg/kg-day)	0.016	0.006	(2)	(2)	—
RSC	0.5	0.5	(2)	(2)	_
SF (per mg/kg-day)	_	-	_		_
ADAF or AF <sub>lifetime</sub>	_	-	_		_
Intake Rate (L/kg-day)	0.289	0.289	(2)	(2)	_
Endpoints	developmental, nervous system	thyroid (E)	thyroid (E)	thyroid (E)	_

Subp. 12g. Naphthalene.

CAS number: 91-20-3

Year Adopted: 2013

Volatility: Moderate

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	70	70	70 (2)	70	NA
RfD	0.038	0.038	(2)	0.016	_
(mg/kg-day)					
RSC	0.5	0.5	(2)	0.2	_
SF (per mg/kg-day)	_	_	_	-	—
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_
Intake Rate (L/kg-day)	0.289	0.289	(2)	0.043	—
Endpoints	nervous system	nervous system	nervous system	nervous system, spleen	—

Subp. 13. Nitrate (as N).

CAS number: 14797-55-8 Year Adopted: 2009 Volatility: Nonvolatile MCL-based HRL: 10,000 µg/L

### Subp. 14. Pentachlorophenol (PCP).

CAS number: 87-86-5 Year Adopted: 2015 Volatility: Low

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	7	7	7 (2)	7 (2)	0.3
RfD (mg/kg-day)	0.0040	0.0040	(2)	(2)	_
RSC	0.5	0.5	(2)	(2)	_
SF (per mg/kg-day)	_	_	_	_	0.4
ADAF or AF <sub>lifetime</sub>	-	-	_	_	$10 (ADAF_{<2}) 3 (ADAF_{2 to <16}) 1 (ADAF_{16+}) $
Intake Rate (L/kg-day)	0.289	0.289	(2)	(2)	$\begin{array}{r} 0.137_{(<2)}\\ 0.047_{(2 \text{ to } <16)}\\ 0.039_{(16+)}\end{array}$
Endpoints	develop- mental, thyroid (E)	develop- mental (E), thyroid (E)	develop- mental (E), hepatic (liver) system, immune system, male reproductive system, thyroid (E)	develop- mental (E), hepatic (liver) system, immune system, male reproductive system, thyroid (E)	cancer

Subp. 14a. Perfluorobutane sulfonate (PFBS).

CAS number: 375-73-5 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	9	7	NA
RfD	_	_	0.0042	0.0014	_
(mg/kg-day)					
RSC	_	_	0.5	0.2	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_
Intake Rate (L/kg-day)	_	_	0.245	0.043	—
Endpoints	_	_	hepatic (liver) system, hematological (blood) system, renal (kidney) system	hepatic (liver) system, hematological (blood) system, renal (kidney) system	_

#### Subp. 14b. Perfluorobutyrate (PFBA).

CAS number: 375-22-4 Year Adopted: 2011 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	7	7 (2)	7 (2)	NA
RfD (mg/kg-day)	_	0.0038	(2)	(2)	—
RSC		0.5	(2)	(2)	_
SF (per mg/kg-day)	_	_	_	_	_

ADAF or AF <sub>lifetime</sub>	_	_	_	_	_
Intake Rate (L/kg-day)	_	0.289	(2)	(2)	_
Endpoints	_			hepatic (liver) system, thyroid (E)	_

#### Subp. 15. Perfluorooctane sulfonate (PFOS) and salts.

CAS number: 1763-23-1; 29081-56-9; 2795-39-3; 70225-14-8; and 29457-72-5

Year Adopted: 2009

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	ND	0.3	NA
RfD (mg/kg-day)		-	_	0.00008	—
RSC	_	_	_	0.2	_
SF (per mg/kg-day)	-	-	_	_	—
ADAF or AF <sub>lifetime</sub>	-	-	_	_	_
Intake Rate (L/kg-day)	-	-	_	0.049	_
Endpoints	_	_	_	developmental, hepatic (liver) system, thyroid (E)	_

#### Subp. 16. Perfluorooctanoic acid (PFOA) and salts.

CAS number: 335-67-1; 3825-26-1; 2395-00-8; 335-93-3; and 335-95-5 Year Adopted: 2009 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	ND	0.3	NA
RfD (mg/kg-day)	_	_	_	0.000077	_
RSC	_	_	_	0.2	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	-	_	_	_
Intake Rate (L/kg-day)	_	_	_	0.053	_
Endpoints	_	_	_	developmental, hepatic (liver) system, immune system	_

Subp. 17. Simazine.

CAS number: 122-34-9 Year Adopted: 2009 Volatility: Nonvolatile MCL-based HRL: 4 µg/L

### Subp. 17a. Sulfamethazine (includes sodium salt form).

CAS number: 57-68-1 (1981-58-4) Year Adopted: 2015 Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	100	100 (2)	100 (2)	NA
RfD	_	0.040	(2)	(2)	_
(mg/kg-day)					
RSC	_	0.8	(2)	(2)	_

SF (per mg/kg-day)	_	_	-	-	—
ADAF or AF <sub>lifetime</sub>	_				—
Intake Rate (L/kg-day)	-	0.289	(2)	(2)	—
Endpoints	_	thyroid	thyroid	thyroid	_

### Subp. 18. 1,1,2,2-Tetrachloroethylene.

CAS number: 127-18-4 Year Adopted: 2009 Volatility: High MCL-based HRL: 5 µg/L

### Subp. 18a. Toluene.

CAS number: 108-88-3 Year Adopted: 2011 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	200	200 (2)	200 (2)	NA
RfD (mg/kg-day)	_	0.22	(2)	(2)	_
RSC		0.2	(2)	(2)	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	_	_	_	_	—
Intake Rate (L/kg-day)	_	0.289	(2)	(2)	_
Endpoints	_	•	immune system, nervous system	•	—

#### Subp. 18b. 1,2,4-Trichlorobenezene.

CAS number: 120-82-1 Year Adopted: 2013 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	100	100 (2)	100	4
RfD (mg/kg-day)	—	0.17	(2)	0.021	_
RSC	_	0.2	(2)	0.2	_
SF (per mg/kg-day)	_	_	_	_	0.029
ADAF or AF <sub>lifetime</sub>	_	_	_	_	$10 (ADAF_{<2})$
					3 (ADAF <sub>2 to &lt;16</sub> ) 1 (ADAF <sub>16+</sub> )
Intake Rate	—	0.289	(2)	0.043	0.137 (<2)
(L/kg-day)					$\begin{array}{r} 0.047 \\ (2 \text{ to } <16) \\ 0.039 \\ (16+) \end{array}$
Endpoints	_	hepatic (liver) system, adrenal (E), hemato- logical (blood) system	hepatic (liver) system, adrenal (E), hemato- logical (blood) system	hepatic (liver) system, adrenal (E), renal (kidney) system	cancer

## Subp. 19. 1,1,1-Trichloroethane.

CAS number: 71-55-6 Year Adopted: 2009 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	20,000	9,000	NA

RfD (mg/kg-day)	_	_	7	2	_
RSC	_	_	0.2	0.2	_
SF (per mg/kg-day)	_	_	_	_	_
ADAF or AF <sub>lifetime</sub>	-	_	_	-	_
Intake Rate (L/kg-day)	_	_	0.077	0.043	_
Endpoints	_	_	hepatic (liver) system, male reproductive system	hepatic (liver) system, male reproductive system	_

Subp. 20. 1,1,2-Trichloroethylene (TCE).

CAS number: 79-01-6 Year Adopted: 2015 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	0.4	0.4	0.4 (3)	2
RfD (mg/kg-day)	_	0.00052	0.00017	(3)	_
RSC		0.2	0.2	(3)	_
SF (per mg/kg-day)	_	_	_	_	0.05
ADAF or AF <sub>lifetime</sub>	_	_	_	_	$ \begin{array}{c} 10 \ (\text{ADAF}_{<2}) \\ 3 \ (\text{ADAF}_{2 \ \text{to} < 16}) \\ 1 \ (\text{ADAF}_{16+}) \end{array} $

Intake Rate (L/kg-day)	_	0.289	0.077	(3)	$\begin{array}{r} 0.137_{(<2)}\\ 0.047_{(2 \text{ to } <16)}\\ 0.039_{(16+)}\end{array}$
Endpoints	_	develop- mental, immune system	develop- mental, immune system	develop- mental, immune system	cancer

## Subp. 21. 2(2,4,5-Trichlorophenoxy)propionic acid (2,4,5-TP or Silvex).

CAS number: 93-72-1 Year Adopted: 2009 Volatility: Nonvolatile MCL-based HRL: 50 µg/L

### Subp. 21a. 1,2,3-Trichloropropane.

CAS number: 96-18-4 Year Adopted: 2013 Volatility: Moderate

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	7	7	7 (2)	7 (2)	0.003
RfD	0.0042	0.0042	(2)	(2)	_
(mg/kg-day)					
RSC	0.5	0.5	(2)	(2)	_
SF (per mg/kg-day)	_	_	_	_	30
ADAF or AF <sub>lifetime</sub>	_	_	_	_	10 (ADAF <sub>&lt;2</sub> )
					3 (ADAF <sub>2 to &lt;16</sub> ) 1 (ADAF <sub>16+</sub> )
Intake Rate (L/kg-day)	0.289	0.289	(2)	(2)	$\begin{array}{c} 0.137 \\ 0.047 \\ (2 \text{ to } <16) \end{array}$

					0.039 (16+)
Endpoints	develop- mental	develop- mental	develop- mental	develop- mental	cancer

#### Subp. 22. 1,3,5-Trimethylbenzene.

CAS number: 108-67-8 Year Adopted: 2009 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	100	100 (2)	100 (2)	NA
RfD	ND	0.14	(2)	(2)	—
(mg/kg-day)					
RSC	_	0.2	(2)	(2)	—
SF (per mg/kg-day)	_	_	_	-	-
ADAF or AF <sub>lifetime</sub>	_	_	_	_	_
Intake Rate (L/kg-day)	_	0.289	(2)	(2)	_
Endpoints	_	hepatic (liver) system	hepatic (liver) system, renal (kidney) system	hepatic (liver) system, renal (kidney)	_
				system	

Subp. 22a. Tris(2-chloroethyl) phosphate.

CAS number: 115-96-8 Year Adopted: 2013 Volatility: Low

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	300	200	200 (3)	5
RfD	-	0.15	0.068	(3)	_
(mg/kg-day)					

RSC	_	0.5	0.2	(3)	_
SF (per	_	_	_	_	0.02
mg/kg-day)					
ADAF or	_	-	_	_	10 (ADAF <sub>&lt;2</sub> )
AF <sub>lifetime</sub>					-
					$3 (ADAF_{2 \text{ to } < 16})$
					1 (ADAF <sub>16+</sub> )
Intake Rate	—	0.289	0.077	(3)	0.137 (<2)
(L/kg-day)					0.047 (2 to <16)
					0.039 (16+)
Endpoints	_	renal (kidney)	renal (kidney)	renal (kidney)	· /
		system,	system	system	
		nervous			
		system,			
		develop-			
		mental			

Subp. 23. Vinyl Chloride.

CAS number: 75-01-4 Year Adopted: 2009 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND	80	10	0.2
RfD (mg/kg-day)	_	_	0.03	0.003	_
RSC		_	0.2	0.2	_
SF (per mg/kg-day)	_	_	_	_	1.4
AF <sub>lifetime</sub>	_	_	_	_	1

Intake Rate (L/kg-day)	_	_	0.077	0.043	0.043
Endpoints	_	-	hepatic (liver) system	hepatic (liver) system	cancer

Subp. 23a. Xylenes.

CAS number: 1330-20-7 Year Adopted: 2011 Volatility: High

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	800	300	300 (2)	300 (2)	NA
RfD	1.2	0.5	(2)	(2)	_
(mg/kg-day)					
RSC	0.2	0.2	(2)	(2)	—
SF (per	-	_	_	_	_
mg/kg-day)					
ADAF or	_	_	—	_	—
AF <sub>lifetime</sub>					
Intake Rate	0.289	0.289	(2)	(2)	—
(L/kg-day)					
Endpoints	nervous system	nervous system	renal (kidney)	renal	_
			system,	(kidney)	
			nervous	system,	
			system	nervous	
				system	

Subp. 24. **Transition.** The health risk limits established for the specific chemicals in this part supersede the health risk limits for those chemicals in part 4717.7500. For chemicals not included in this part, the health risk limits established in part 4717.7500 remain in place.

Statutory Authority: MS s 103H.201; 144.0751; 144.12

History: 33 SR 1792; 35 SR 1395; 38 SR 397; 40 SR 689

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