

Department of Health**Proposed Permanent Rules Related to Health Risk Limits****4717.7860 HEALTH RISK LIMITS TABLE.**

[For text of subparts 1 to 7, see Minnesota Rules]

Subp. 7a. [Renumbered subp 7c]

Subp. 7b. **Chlorothalonil.**

CAS number: 1897-45-6

Year Adopted: 2025

Volatility: Nonvolatile

	<u>Acute</u>	<u>Short-term</u>	<u>Subchronic</u>	<u>Chronic</u>	<u>Cancer</u>
<u>HRL (µg/L)</u>	<u>ND</u>	<u>20</u>	<u>2</u>	<u>1</u>	<u>6</u>
<u>RfD</u> <u>(mg/kg-day)</u>	<u>--</u>	<u>0.014</u>	<u>0.00067</u>	<u>0.00029</u>	<u>--</u>
<u>RSC</u>	<u>--</u>	<u>0.5</u>	<u>0.2</u>	<u>0.2</u>	<u>--</u>
<u>SF (per</u> <u>mg/kg-day)</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>0.017</u>
<u>ADAF or</u> <u>AF_{lifetime}</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>10 (ADAF_{<2})</u> <u>3 (ADAF_{2 to <16})</u> <u>1 (ADAF₁₆₊)</u>
<u>Intake Rate</u> <u>(L/kg-day)</u>	<u>--</u>	<u>0.290</u>	<u>0.074</u>	<u>0.045</u>	<u>0.155 (<2)</u> <u>0.040 (2 to <16)</u> <u>0.042 (16+)</u>
<u>Endpoints</u>	<u>--</u>	<u>gastrointestinal</u> <u>system</u>	<u>gastrointestinal</u> <u>system</u>	<u>gastro-</u> <u>intestinal</u> <u>system,</u> <u>hepatic</u> <u>(liver)</u> <u>system,</u> <u>renal</u> <u>(kidney)</u> <u>system</u>	<u>cancer</u>

Subp. ~~7a~~ 7c. **Clothianidin.**

CAS number: 210880-92-5, 205510-53-8

Year Adopted: 2018

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	200	200 (2)	200 (2)	NA
RfD (mg/kg-day)	--	0.093	(2)	(2)	--
RSC	--	0.5	(2)	(2)	--
SF (per mg/kg-day)	--	--	--	--	--
ADAF or AF_{lifetime}	--	--	--	--	--
Intake Rate (L/kg-day)	--	0.285	(2)	(2)	--
Endpoints	--	developmental	developmental	developmental	--

Subp. ~~8~~ 7d. **Cyanazine.**

CAS number: 21725-46-2

Year Adopted: 2018

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	3	3	3	1	NA
RfD (mg/kg-day)	0.0015	0.0015	0.0012	0.00022	--
RSC	0.5	0.5	0.2	0.2	--
SF (per mg/kg-day)	--	--	--	--	--
ADAF or AF_{lifetime}	--	--	--	--	--

Intake Rate (L/kg-day)	0.285	0.285	0.070	0.044	--
Endpoints	developmental, female reproductive system	developmental, female reproductive system	developmental, female reproductive system, hepatic (liver) system, renal (kidney) system	None	--

Subp. 7e. 1,2-Dibromoethane (EDB).

CAS number: 106-93-4

Year Adopted: 2025

Volatility: High

	<u>Acute</u>	<u>Short-term</u>	<u>Subchronic</u>	<u>Chronic</u>	<u>Cancer</u>
<u>HRL (µg/L)</u>	<u>ND</u>	<u>10</u>	<u>10 (2)</u>	<u>9</u>	<u>0.03</u>
<u>RfD (mg/kg-day)</u>	--	<u>0.018</u>	<u>(2)</u>	<u>0.0021</u>	--
<u>RSC</u>	--	<u>0.2</u>	<u>(2)</u>	<u>0.2</u>	--
<u>SF (per mg/kg-day)</u>	--	--	--	--	<u>3.6</u>
<u>ADAF or AF_{lifetime}</u>	--	--	--	--	<u>10 (ADAF_{<2})</u> <u>3 (ADAF_{2 to <16})</u> <u>1 (ADAF₁₆₊)</u>
<u>Intake Rate (L/kg-day)</u>	--	<u>0.290</u>	<u>(2)</u>	<u>0.045</u>	<u>0.155 (<2)</u> <u>0.040 (2 to <16)</u> <u>0.042 (16+)</u>
<u>Endpoints</u>	--	<u>female reproductive system, hepatic (liver) system, immune</u>	<u>female reproductive system, hepatic (liver) system, immune</u>	<u>female reproductive system, hepatic (liver) system, immune</u>	<u>cancer</u>

		<u>system, male</u> <u>reproductive</u> <u>system, renal</u> <u>(kidney)</u> <u>system,</u> <u>respiratory</u> <u>system,</u> <u>spleen</u>	<u>system, male</u> <u>reproductive</u> <u>system, renal</u> <u>(kidney)</u> <u>system,</u> <u>respiratory</u> <u>system,</u> <u>spleen</u>	<u>system, male</u> <u>reproductive</u> <u>system,</u> <u>respiratory</u> <u>system</u>	
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Subp. 8. [Renumbered subp 7d]

[For text of subparts 8a to 8f, see Minnesota Rules]

Subp. 8g. [See repealer.]

[For text of subparts 8h to 14d, see Minnesota Rules]

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

CAS number: 45298-90-6; 1763-23-1; 29081-56-9; 2795-39-3; 70225-14-8;
and 29457-72-5

Year Adopted: ~~2009~~ 2025

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	ND <u>0.0023</u>	ND <u>0.0023</u>	0.3 <u>0.0023</u>	NA <u>0.0076</u>
RfD (mg/kg-day) RfSC (ng/mL)*	--	-- <u>2.6</u>	-- <u>2.6</u>	0.00008 <u>2.6</u>	--
RSC	--	-- <u>0.2</u>	-- <u>0.2</u>	0.2	--
SF (per mg/kg-day)	--	--	--	--	-- <u>13</u>
ADAF or AF_{lifetime}	--	--	--	--	-- <u>10</u> (ADAF ₂) <u>3</u> (ADAF ₂ to <16)

					$\frac{1}{(\text{ADAF}_{16+})}$
Intake Rate (L/kg-day)	--	-- #	-- #	0.049 #	-- $\frac{0.155}{(\leq 2)}$ $\frac{0.040}{(2 \text{ to } \leq 16)}$ $\frac{0.042}{(16+)}$
Endpoints	--	-- <u>developmental, hepatic (liver) system, immune system</u>	-- <u>developmental, hepatic (liver) system, immune system</u>	developmental, hepatic (liver) system, thyroid (E) <u>immune system</u>	-- <u>cancer</u>

* A reference serum concentration (ng/mL) rather than a reference dose (mg/kg-d) was used in MDH's toxicokinetic model to calculate noncancer guidance values for PFOS.

95th percentile water intake rates (Tables 3-1, 3-3, and 3-5 in the Environmental Protection Agency, Exposure Factors Handbook, 2019), or upper percentile breast milk intake rates (Table 15-1), Environmental Protection Agency Exposure Factors Handbook, 2011.

Subp. 16. **Perfluorooctanoate (PFOA) and salts.**

CAS number: 45285-51-6; 335-67-1; ~~335-66-0~~; 3825-26-1; 2395-00-8; 335-93-3; and 335-95-5

Year Adopted: ~~2018~~ 2025

Volatility: Nonvolatile

	Acute	Short-term	Subchronic	Chronic	Cancer
HRL (µg/L)	ND	0.035 <u>0.00024</u>	0.035 <u>0.00024</u>	0.035 <u>0.00024</u>	NA <u>0.0000079</u>
RfD (mg/kg-day) RfSC (ng/mL)*	--	0.000018 <u>0.93</u>	0.000018 <u>0.93</u>	0.000018 <u>0.93</u>	--
RSC	--	0.5 <u>0.2</u>	0.5 <u>0.2</u>	0.5 <u>0.2</u>	--

SF (per mg/kg-day ng/kg-day)	--	--	--	--	-- <u>0.0126</u>
ADAF or AF_{lifetime}	--	--	--	--	-- <u>$\frac{10}{3 \text{ (ADAF}_{<2})}$</u> <u>$\frac{1}{\text{ADAF}_{16+}}$</u>
Intake Rate (L/kg-day)	--	<u>* #</u>	<u>* #</u>	<u>* #</u>	-- <u>0.155</u> <u>$\frac{0.040_{(<2)}}{0.042_{(<16)}}$</u>
Endpoints	--	developmental, hepatic (liver) system, immune system, renal (kidney) system	developmental, hepatic (liver) system, immune system, renal (kidney) system	developmental, hepatic (liver) system, immune system, renal (kidney) system	-- <u>cancer</u>

* A reference serum concentration (ng/mL) rather than a reference dose (mg/kg-d) was used in MDH's toxicokinetic model to calculate noncancer guidance values for PFOA.

* # 95th percentile water intake rates (Tables 3-1 and 3-3, and 3-5 in the Environmental Protection Agency, Exposure Factors Handbook, 2019), or upper percentile breast milk intake rates (Table 15-1), Environmental Protection Agency (EPA) Exposure Factors Handbook, 2011.

[For text of subparts 16a to 24, see Minnesota Rules]

REPEALER. Minnesota Rules, parts 4717.7500, subparts 5, 26a, and 31; and 4717.7860, subpart 8g, are repealed.