



Remediation and Redevelopment Program

January 2023

Guidance: History of Changes to Vapor Action Levels (VAL)⁽¹⁾, Vapor Risk Screening Levels (VRSL) and Attenuation (AF)⁽²⁾ for Common Volatile Organic Compounds (VOC) in Wisconsin

Purpose

The purpose of this guidance is to supplement *Guidance: Wisconsin Vapor Quick Look-Up Table* (RR-0136) and is intended to be used in understanding previous site-specific decisions regarding vapor data. RR-0136 is available at dnr.wi.gov, search “RR-0136.”

Tetrachloroethylene (PCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	
2010	4.1	0.6	--	--	21	3.1	--	--	21	3.1	--	--	AF not yet established
May 2010	4.1	0.6	41	6	21	3.0	210	30	21	3.0	2,100	300	AF = 0.1 / 0.01
May 2012	42	6.2	420	62	180	27	1,800	270	180	27	18,000	2,700	AF = 0.1 / 0.01
Jun 2015	42	6.2	1,400	210	180	27	6,000	900	180	27	18,000	2,700	AF = 0.03 / 0.01
May 2021	42	6.1	1,400	200	180	26	5,800	840	180	26	18,000	2,600	AF = 0.03 / 0.01

Notes:

- The VAL is either Residential or Non-residential (i.e., Small Commercial VAL = Large Commercial & Industrial VAL). “Residential setting” includes educational, childcare and elder care settings, per Wis. Admin. Code § NR 700.03(49g). “Non-residential setting” means other than residential settings, per Wis. Admin. Code § NR 700.03(39m).
- The AF is either Residential/Small Commercial or Large Commercial & Industrial (i.e., Residential AF = Small Commercial AF).

Key:

µg/m³ = micrograms per cubic meter
 ppbV = parts per billion by volume
 -- not established
 changes noted in **BOLD**

Trichloroethylene (TCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	
2010	12	2.2	--	--	61	11.4	--	--	61	11.4	--	--	AF not yet established
May 2010	12	2.2	120	22	61	11	610	110	61	11	6,100	1,100	AF = 0.1 / 0.01
Nov 2011	2.1	0.39	21	3.9	8.8	1.6	88	16	8.8	1.6	880	160	AF = 0.1 / 0.01
Jun 2015	2.1	0.39	70	13	8.8	1.6	290	53	8.8	1.6	880	160	AF = 0.03 / 0.01
May 2021	2.1	0.38	70	13	8.8	1.6	290	53	8.8	1.6	880	160	AF = 0.03 / 0.01

Dichloroethylene, cis-1,2- (cis-1,2-DCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	
2010	370	93	--	--	15,270	3,860	--	--	15,270	3,860	--	--	AF not yet established
May 2010	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.1 / 0.01
Jun 2015	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.03 / 0.01
Nov 2022	42	10	1,400	350	180	45	5,800	1,400	180	45	18,000	4,500	AF = 0.03 / 0.01

Dichloroethylene, trans-1,2- (trans-1,2-DCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	
2010	63	15.9	--	--	260	65.7	--	--	260	65.7	--	--	AF not yet established
May 2010	63	15.9	630	159	260	65.6	2,600	656	260	65.6	26,000	6,560	AF = 0.1 / 0.01
May 2014	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.1 / 0.01
Jun 2015	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.03 / 0.01
Nov 2020	42	10	1,400	350	180	45	5,800	1,400	180	45	18,000	4,500	AF = 0.03 / 0.01

Key:

µg/m³ = micrograms per cubic meter
ppbV = parts per billion by volume

-- not established
changes noted in **BOLD**

Vinyl Chloride (VC)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	
2010	1.6	0.6	--	--	28	11	--	--	28	11	--	--	AF not yet established
May 2010	1.6	0.62	16	6.2	28	11	280	110	28	11	2,800	1,100	AF = 0.1 / 0.01
May 2014	1.7	0.65	17	6.5	28	11	280	110	28	11	2,800	1,100	AF = 0.1 / 0.01
Jun 2015	1.7	0.65	57	22	28	11	930	370	28	11	2,800	1,100	AF = 0.03 / 0.01
May 2021	1.7	0.65	56	22	28	11	930	360	28	11	2,800	1,100	AF = 0.03 / 0.01

Benzene													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	
2010	3.1	1.0	--	--	16	5	--	--	16	5	--	--	AF not yet established
May 2010	3.1	0.95	31	9.5	16.0	4.9	160	49	16.0	4.9	1,600	490	AF = 0.1 / 0.01
May 2014	3.6	1.1	36	11	16.0	4.9	160	49	16.0	4.9	1,600	490	AF = 0.1 / 0.01
June 2015	3.6	1.1	120	37	16	4.9	530	160	16	4.9	1,600	490	AF = 0.03 / 0.01
June 2015	3.6	1.1	120	37	16	4.9	520	160	16	4.9	1,600	490	AF = 0.03 / 0.01

Naphthalene													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	µg/m ³	ppbV	
May 2010	0.72	0.14	7.2	1.4	3.6	0.68	36	6.8	3.6	0.68	360	68	AF = 0.1 / 0.01
May 2014	0.83	0.16	8.3	1.6	3.6	0.68	36	6.8	3.6	0.68	360	68	AF = 0.1 / 0.01
June 2015	0.83	0.16	28	5.3	3.6	0.68	120	23	3.6	0.68	360	68	AF = 0.03 / 0.01

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