



Ohio River Basin Aquatic Life and Human Health Tier I Criteria and Tier II Values



Division of Surface Water

Water Quality Standards Program

**Ohio River Basin Aquatic Life and Human Health Tier I Criteria and Tier II Values
Summary Table Revision History (10/1/21)**

<u>Table Date</u>	<u>Revision</u>
1/12/2015	Removed the Thallium human health non-drink value of 6.3 ug/l pursuant to revisions to rule OAC 3745-1-34, effective October 1, 2014
2/3/2017	Updated rule references to match the 2015 WQS reorganization effective 2/6/2017.
4/9/21	Updated aquatic life numbers for barium and strontium; added aquatic life values for bromine and peracetic acid; corrected units for beryllium and silver aquatic life criteria.
10/1/21	Updated human health criteria to reflect rule revisions adopted on 10/20/20, effective 1/18/21 and approved on 4/27/21. These revisions were made to address the federal human health criteria updates for 94 chemicals published by USEPA in 2015. CASRNs were also added to the table.
12/21/23	Added Tier II aquatic life values for N-methylpyrrolidone (NMP) and hydrogen peroxide.

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Ohio River Basin Water Quality Criteria

		Aquatic Life* (µg/l)				Human Health* (µg/l)	
Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Acenaphthene	83-32-9	I	38	19	15	70	90
Acenaphthylene	208-96-8		ID	ID	ID		
Acetonitrile (Methyl cyanide)	75-05-8	II	210,000	100,000	12,000		
Acetophenone	98-86-2		ID	ID	ID		
Acrolein	107-02-8					3.0	400
Acrylonitrile	107-13-1	II	1,300	650	78	0.51 ^c	70 ^c
Alachlor	15972-60-8					2.0 ^a	
Aldrin	309-00-2					0.0000077 ^c	0.0000077 ^c
2-Amino-4,6-dinitrotoluene	35572-78-2	II	320	160	18		
4-Amino-2,6-dinitrotoluene	19406-51-0	II	200	98	11		
Ammonia	7664-41-7	I		Table 35-1			
Aniline	62-53-3	I,I,II	59	30	4.1		
Anthracene	120-12-7	II	0.35	0.18	0.020	300	400
Antimony	7440-36-0	II	1,800	900	190	5.6	640
Arsenic - Diss	7440-38-2	I	680	340	150	NA	
Arsenic - TR	7440-38-2	I	680	340	150	10 ^a	

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Asbestos (fibers/liter)	1332-21-4					7,000,000 ^a	
Atrazine	1912-24-9					3.0 ^a	
Barium	7440-39-3	I,I,II	i	i	i	1,000	
Benzene	71-43-2	II	1,400	700	160	5.0 ^{a,c}	160 ^c
Benzidine	92-87-5					0.00086 ^c	0.11 ^c
Benzo(a)anthracene	56-55-3		ID	ID	ID	0.012 ^c	0.013 ^c
Benzo(a)pyrene	50-32-8		ID	ID	ID	0.0012 ^c	0.0013 ^c
Benzo(b)fluoranthene	205-99-2		ID	ID	ID	0.012 ^c	0.013 ^c
Benzo(g,h,i,)perylene	191-24-2		ID	ID	ID		
Benzo(k)fluoranthene	207-08-9		ID	ID	ID	0.038 ^c	0.13 ^c
Beryllium	7440-41-7	II	g	g	g	4.0 ^a	280
Biphenyl	92-52-4	II	51	26	6.5		
Bis(2-chloroethyl)ether	111-44-4					0.30 ^c	22 ^c
Bis(2-chloroisopropyl)ether	108-60-1					1,400	
Bis(2-chloromethyl)ether	542-88-1					0.0015 ^c	0.17 ^c

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Bis(2-Chloro-1-methyl ether)	108-60-1					200	4,000
Bis(2-ethylhexyl)phthalate	117-81-7	II	2,100	1,100	8.4	3.2 ^c	3.7 ^c
Bismuth	7440-69-9		ID	ID	ID		
Boron	7440-42-8	I,I,II	65,000	33,000	3,900		
Bromate	7789-38-0					10 ^a	
Bromine	7726-95-6	II	4.8	2.4	0.26		
Bromochloromethane	74-97-5		ID	ID	ID		
Bromodichloromethane	75-27-4		ID	ID	ID	5.5 ^c	270 ^c
3-Bromofluorobenzene	1073-06-9		ID	ID	ID		
4-Bromofluorobenzene	460-00-4		ID	ID	ID		
Bromoform (Tribromomethane)	75-25-2	II	2,200	1,100	230	43 ^c	1,200 ^c
Bromomethane	74-83-9	See Methyl bromide					
1,3-Butadiene	106-99-0		ID	ID	ID		
2-Butanone (Methyl ethyl ketone)	78-93-3	II	400,000	200,000	22,000		
n-Butylbenzene	104-51-8		ID	ID	ID		

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
sec-Butylbenzene	135-98-8		ID	ID	ID		
tert-Butylbenzene	98-06-6		ID	ID	ID		
Butylbenzyl phthalate	85-68-7	II	260	130	23	0.10	1.0
Cadmium - Diss	7440-43-9	I	Table 35-9			NA	
Cadmium - TR	7440-43-9	I	Table 35-9			5.0 ^a	
Carbofuran	1563-66-2					40 ^a	
Carbon disulfide	75-15-0	II	260	130	15		
Carbon tetrachloride	56-23-5	II	4,400	2,200	240	2.3 ^c	50 ^c
Chloramine	7080-50-4					4,000 ^a	
Chlordane	12789-03-6					0.0031 ^c	0.0032 ^c
Chlorides	--					250,000 ^a	
Chlorine (wwh,ewh, mwh,cwh) - TRes	7782-50-5	I	38	19	11	4,000 ^a	
Chlorine (lrw) - TRes	7782-50-5	I	38	19	NA	4,000 ^a	
Chlorine (ssh) - TRes	7782-50-5	I	b	b	b	4,000 ^a	
Chlorine dioxide	10049-04-4					800 ^a	

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Chlorite	14998-27-7					1,000 ^a	
Chloroacetic acid ¹	79-11-8					60 ^a	
Chlorobenzene	108-90-7	II	850	420	47	100 ^a	800
Chlorodibromomethane	124-48-1	See Dibromochloromethane					
Chlorodibromopropane	96-12-8	See 1,2-Dibromo-3-chloropropane					
Chloroform (Trichloromethane)	67-66-3	II	2,600	1,300	140	57 ^c	20,000
2-Chloronaphthalene	91-58-7					800	1,000
2-Chlorophenol	95-57-8	II	580	290	32	0.1 ^f	800
Chromium - Diss	1606-58-31	I	Table 35-9			NA	
Chromium - TR	1606-58-31	I	Table 35-9			100 ^a	
Chromium VI - Diss	18540-29-9	I	31	16	11		
Chrysene	218-01-9		ID	ID	ID	0.038 ^c	1.3 ^c
Cobalt	7440-48-4	II	440	220	24		
Copper - Diss	7440-50-8	I	Table 35-9			NA	
Copper - TR	7440-50-8	I	Table 35-9				

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		Aquatic Life* (µg/l)				Human Health* (µg/l)	
Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Cyanide - amenable to chlorination	57-12-5	See Cyanide - free					
Cyanide - free (wwh,ewh,mwh)	57-12-5	I	92	46	12	4.0	400
Cyanide - free (lwh)	57-12-5	I	92	46	NA	4.0	400
Cyanide - free (ssh,cwh)	57-12-5	I	45	22	5.2	4.0	400
2,4-D (2,4-Dichlorophen-oxyacetic acid)	94-75-7					70 ^a	
Dalapon	75-99-0					200 ^a	
4,4'-DDD	72-54-8					0.0012 ^c	0.0012 ^c
4,4'-DDE	72-55-9					0.00018 ^c	0.00018 ^c
4,4'-DDT	50-29-3					0.0003 ^c	0.0003 ^c
Dibenzo (a,h)anthracene	53-70-3		ID	ID	ID	0.0012 ^c	0.0013 ^c
Dibenzofuran	132-64-9	II	71	36	4.0		
Dibromochloromethane	124-48-1		ID	ID	ID	4.0 ^c	210 ^c
1,2-Dibromo-3-chloropropane	96-12-8		ID	ID	ID	0.2 ^a	
1,2-Dibromoethane	106-93-4	See Ethylene dibromide					

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Di-n-butyl phthalate	84-74-2					20	30
Dichloroacetic acid ¹	79-43-6					60 ^a	
1,2-Dichlorobenzene	95-50-1	II	260	130	23	420	3,000
1,3-Dichlorobenzene	541-73-1	II	160	79	22	7.0	10
1,4-Dichlorobenzene	106-46-7	II	110	57	9.4	63	900
3,3'-Dichlorobenzidine	91-94-1					0.21 ^c	1.5 ^c
Dichlorobromomethane	75-27-4	See Bromodichloromethane					
Dichlorodifluoromethane	75-71-8		ID	ID	ID		
1,1-Dichloroethane	75-34-3		ID	ID	ID		
1,2-Dichloroethane	107-06-2	II	19,000	9,600	2,000	3.8 ^c	6,500 ^c
1,1-Dichloroethylene	75-35-4	II	3,800	1,900	210	0.57 ^c	20,000
1,2-Dichloroethylene ²	156-59-2	II	18,000	8,800	970	See criteria for individual chemicals	
cis-1,2-Dichloroethylene	156-59-2		See 1,2-Dichloroethylene			70 ^a	
trans-1,2-Dichloroethylene	156-60-5		See 1,2-Dichloroethylene			100 ^a	4,000
Dichloromethane	75-09-2	See Methylene chloride					
2,4-Dichlorophenol	120-83-2	II	210	110	11	0.3 ^f	60

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2,4-D (2,4-Dichlorophenoxy-acetic acid)	94-75-7						12,000
1,2-Dichloropropane	78-87-5	II	6,500	3,300	520	5.0 ^{a,c}	310 ^c
1,3-Dichloropropene	542-75-6	II	30	15	1.7	2.7	120 ^c
Dieldrin	60-57-1	I	0.47	0.24	0.056	0.000012 ^c	0.000012 ^c
Di(2-ethylhexyl)adipate	103-23-1					400 ^a	
Diethyl phthalate	84-66-2	II	2,000	980	220	600	600
Difluorodichloromethane	75-71-8	See Dichlorodifluoromethane					
2,4-Dimethylphenol	105-67-9	II	280	140	15	100	3,000
Dimethyl phthalate	131-11-3	II	6,400	3,200	1,100	2,000	2,000
3,5-Dinitroaniline	618-87-1	II	430	210	70		
1,3-Dinitrobenzene	99-65-0	II	210	100	22		
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	497-56-3					2.0	30
Dinitrophenols ³	2555-05-87					10	1,000
2,4-Dinitrophenol	51-28-5					10	300
2,3-Dinitrotoluene	602-01-07	II	41	21	2.3		

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
2,4-Dinitrotoluene	121-14-2	II	790	390	44	0.49 ^c	17 ^c
2,5-Dinitrotoluene	619-15-8	II	100	50	5.6		
2,6-Dinitrotoluene	606-20-2	II	1,500	730	81		
3,5-Dinitrotoluene	618-85-9	II	1,700	860	95		
Dinoseb	88-85-7					7.0 ^a	
1,4-Dioxane	123-91-1		ID	ID	ID	32 ^c	3,600 ^c
1,2-Diphenylhydrazine	122-66-7					0.30 ^c	2.0 ^c
Diquat	85-00-72, 764-72-9					20 ^a	
Dissolved oxygen	--	I		Table 35-1			
Dissolved solids	--	I	ID	ID	1,500,000 ^d	750,000 ^{a,e} max. 500,000 ^{a,e} ave.	
alpha-Endosulfan	959-98-8					20	30
beta-Endosulfan	33213-65-9					20	40
Endosulfan sulfate	1031-07-8					20	40
Endothall	145-73-3					100 ^a	

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Endrin ⁴	72-20-8	I	0.17	0.086	0.036	0.03	0.03
Endrin aldehyde ⁴	7421-93-4					0.29	
Ethylbenzene	100-41-4	II	1,100	550	61	68	130
Ethylene dibromide (EDB) (1,2-Dibromoethane)	106-93-4		ID	ID	ID	0.050 ^a	
Ethylene glycol	107-21-1	II	2,600,000	1,300,000	140,000		
Fluoranthene	206-44-0	II	7.4	3.7	0.80	20	20
Fluorene	86-73-7	I,I,II	220	110	19	50	70
Fluoride	16984-48-8					1,000	
Fluorobenzene	462-06-6		ID	ID	ID		
2-Fluorobiphenyl	321-60-8		ID	ID	ID		
2-Fluorophenol	367-12-4		ID	ID	ID		
Glyphosate	1071-83-6					700 ^a	
Halomethanes	--	See criteria for individual chemicals					
Heptachlor	76-44-8					0.000059 ^c	0.000059 ^c
Heptachlor epoxide	1024-57-3					0.00032 ^c	0.00032 ^c
Hexachlorobenzene	118-74-1					0.00079 ^c	0.00079 ^c

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Hexachlorobutadiene	87-68-3					0.10 ^c	0.1 ^c
alpha-Hexachlorocyclohexane	319-84-6					0.0036 ^c	0.0039 ^c
beta-Hexachlorocyclohexane	319-85-7					0.08 ^c	0.14 ^c
gamma-Hexachloro- cyclohexane (Lindane)	58-89-9	I,I,II	1.9	0.95	0.057	0.20 ^c	44 ^c
Hexachlorocyclohexane (technical grade)	608-73-1					0.066 ^c	0.1 ^c
Hexachlorocyclopentadiene	77-47-4					4.0	4.0
Hexachloroethane	67-72-1					1.0 ^c	1.0 ^c
HMX (Octahydro-1,3,5,7- tetranitro-1,3,5,7-tetrazocine)	2691-41-0	II	2,500	1,200	220		
Hydrogen peroxide	7722-84-1	II	180	92	10		
Indeno(1,2,3-c,d)pyrene	193-39-5		ID	ID	ID	0.012 ^c	0.013 ^c
Iron - Soluble	7439-89-6					300 ^a	
Isophorone	78-59-1	II	15,000	7,500	920	340 ^c	18,000 ^c
Isopropylbenzene	98-82-8	II	86	43	4.8		

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
4-Isopropyltoluene	99-87-6	II	300	150	16		
Lead - Diss	7439-92-1	I	Table 35-9			NA	
Lead - TR	7439-92-1	I	Table 35-9			ID	ID
Lindane	58-89-9	See gamma-Hexachlorocyclohexane					
Magnesium	7439-95-4		Not available				
Manganese	7439-96-5						
MBAS (foaming agents)	--	I		500 ^f			
Mercury - Diss	7439-97-6	I	2.9	1.4	0.77	NA	
Mercury - TR	7439-97-6	I	3.4	1.7	0.91	0.012	0.012
Methoxychlor	72-43-5					0.02	0.02
Methyl bromide (Bromomethane)	74-83-9	II	75	38	16	47	10,000
3-Methyl-4-Chlorophenol	59-50-7					500	2,000
Methyl cyanide	75-05-8	See Acetonitrile					
Methyl ethyl ketone	78-93-3	See 2-Butanone					
4-Methyl-2-pentanone	108-10-1		ID	ID	ID		
Methylene chloride (Dichloromethane)	75-09-2	II	22,000	11,000	1,900	5.0 ^{a,c}	10,000 ^c

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Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
2-Methylphenol	95-48-7	II	1,200	600	67		
3-Methylphenol	108-39-4	II	1,100	560	62		
4-Methylphenol	106-44-5	II	960	480	53		
N-Methylpyrrolidone	872-50-4	II	71	36	7.2		
Methyl tert-butyl ether	1634-04-4	II	13,000	6,500	730		
Mirex	2385-85-5					0.00011 ^c	0.00011 ^c
Molybdenum	7439-98-7	II	370,000	190,000	20,000		
Naphthalene	91-20-3	II	340	170	21		
Nickel - Diss	7440-02-0	I	Table 35-9			NA	
Nickel - TR	7440-02-0	I	Table 35-9			610	4,600
Nitrate-N + Nitrite-N	14797-55-8, 14797-65-0					10,000 ^a	
Nitrite-N	14797-65-0					1,000 ^a	
Nitrobenzene	98-95-3	II	4,000	2,000	380	10	600
Nitrocellulose	9004-70-0		ID	ID	ID		
Nitroglycerine	55-63-0	II	320	160	18		
Nitroguanidine	556-88-7		ID	ID	ID		
2-Nitrophenol	88-75-5	II	1,300	650	73		

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Nitrosoamines ⁵	62-75-9, 55-18-5, 621-64-7					0.0080 ^c	12.4 ^c
N-Nitrosodibutylamine	924-16-3					0.063 ^c	2.2 ^c
N-Nitrosodiethylamine	55-18-5					0.0080 ^c	12.4 ^c
N-Nitrosodimethylamine	62-75-9					0.0069 ^c	30 ^c
N-Nitrosodi-n-propylamine	621-64-7					0.050 ^c	5.1 ^c
N-Nitrosodiphenylamine	86-30-6					33 ^c	60 ^c
N-Nitrosodipyrrolidine	930-55-2					0.16 ^c	340 ^c
2-Nitrotoluene	88-72-2	II	1,300	640	71		
3-Nitrotoluene	99-08-1	II	760	380	42		
4-Nitrotoluene	99-99-0	II	820	410	46		
Oil & grease	--	I		10,000 ^f			
Oxamyl (Vydate)	23135-22-0					200 ^a	
Parathion	56-38-2	I	0.13	0.065	0.013		
Pentachlorobenzene	608-93-5					0.1	0.1
Peracetic acid	79-21-0	II	330	160			
Pentachlorophenol	87-86-5	I	Table 35-10			0.3 ^c	0.4 ^c

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Table numbers within this table refer to Chapter 3745-1 of the OAC.
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Chemical	CAS Number	Aquatic Life* (µg/l)				Human Health* (µg/l)	
		Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Perchlorate	14797-73-0	I	40,000	20,000	10,000	4.9	9,300
pH	--	I			Table 35-1		
Phenanthrene	85-01-8	II	61	31	2.3		
Phenol (wwh,ewh,mwh)	108-95-2	I,I,II	9,400	4,700	400	1.0 ^f	300,000
Phenol (lrw)	108-95-2	I,I,II	9,400	4,700	NA	1.0 ^f	300,000
Phenol (cwh,ssh)	108-95-2	I,I,II	9,100	4,600	160	1.0 ^f	300,000
Phenolics	--	See criteria for individual chemicals					
Phosphate	14265-44-2	See Phosphorus					
Phosphorus	7723-14-0	I	Table 37-1	ID	ID	Table 37-1	
Picloram	1918-02-1					500 ^a	
Polychlorinated biphenyls (PCBs) ⁸	1336-36-3					0.00064 ^c	0.00064 ^c
Polynuclear aromatic hydrocarbons (PAHs)	130498-29-2	See criteria for individual chemicals					
n-Propyl benzene	103-65-1		ID	ID	ID		
Propylene glycol	57-55-6	II	1,300,000	640,000	71,000		
Pyrene	129-00-0	II	83	42	4.6	20	30

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		Aquatic Life* (µg/l)				Human Health* (µg/l)	
Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine)	121-82-4	II	1,000	520	79		
SAS-310	101646-63-3, 101646-62-2, 142828-65-7	II	10	5.0	0.61		
Selenium - Diss	7782-49-2	I			4.6	NA	
Selenium - TR	7782-49-2	I			5.0	50 ^a	4,200
Silver - Diss	7440-22-4	I	h		ID	NA	
Silver (wwh,ewh,mwh)-TR	7440-22-4	I	h		1.3	50	
Silver (lrw) - TR	7440-22-4	I	h		NA	50	
Silver (ssh, cwh) - TR	7440-22-4	I	h		0.06	50	
Silvex (2,4,5-TP; 2-[2,4,5-Trichlorophenoxy]propionic acid)	93-72-1					10	400
Simazine	122-34-9					4.0 ^a	
Strontium	7440-24-6	I,I,II	j	j	j		
Styrene	100-42-5	II	570	290	32	100 ^a	
Sulfates	14808-79-8					250,000 ^a	
Sulfide	18496-25-8						

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		Aquatic Life* (µg/l)				Human Health* (µg/l)	
Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Temperature	--	I		Table 35-1			
1,2,4,5-Tetrachlorobenzene	95-94-3					0.03	0.03
2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) ⁶	1746-01-6					0.00000005 ^c	0.051 ^c
1,1,1,2-Tetrachloroethane	630-20-6	II	1,500	770	85		
1,1,2,2-Tetrachloroethane	79-34-5	II	1,800	910	260	1.7 ^c	30 ^c
Tetrachloroethylene	127-18-4	II	850	430	53	5.0 ^{a,c}	290 ^c
Tetrahydrofuran	109-99-9	II	150,000	74,000	11,000		
Tetryl	479-45-8		ID	ID	ID		
Thallium	7440-28-0	II	160	79	17	1.7	
Tin	7440-31-5	II	3,200	1,600	180		
Titanium	7440-32-6		ID	ID	ID		
Toluene	108-88-3	II	1,100	560	62	57	520
Toxaphene	8001-35- 2					0.0028 ^c	0.0071 ^c
2-[2,4,5-Trichlorophenoxy] propionic acid (2,4,5-TP)	93-72-1	See Silvex					
Tribromomethane	75-25-2	See Bromoform					
2,4,6-Tribromophenol	118-79-6	II	100	50	5.6		

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		Aquatic Life* (µg/l)				Human Health* (µg/l)	
Chemical	CAS Number	Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Trichloroacetic acid ¹	76-03-9					60 ^a	
1,2,4-Trichlorobenzene	120-82-1					0.71 ^c	0.76 ^c
1,1,1-Trichloroethane	71-55-6	II	1,400	690	76	200 ^a	200,000
1,1,2-Trichloroethane	79-00-5	II	6,600	3,300	740	5.0 ^{a,c}	89 ^c
Trichloroethylene	79-01-6	II	4,000	2,000	220	5.0 ^{a,c}	70 ^c
Trichloromethane	67-66-3	See Chloroform					
2,4,5-Trichlorophenol	95-95-4					300	600
2,4,6-Trichlorophenol	88-06-2	II	79	39	4.9	14 ^c	28 ^c
1,2,4-Trimethylbenzene	95-63-6	II	280	140	15		
1,3,5-Trimethylbenzene	108-67-8	II	460	230	26	450	950
1,3,5-Trinitrobenzene	99-35-4	II	54	27	11		
2,4,6-Trinitrotoluene	118-96-7	II	230	120	13		
Urea	57-13-6	II	300,000	150,000	17,000		
Vanadium	7440-62-2	II	300	150	44		
Vinyl chloride	75-01-4	II	17,000	8,400	930	0.22 ^c	16 ^c
Vydate	23135-22-0	See Oxamyl					

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Chemical	CAS Number	Aquatic Life* (µg/l)				Human Health* (µg/l)	
		Tier	IMZM	OMZM	OMZA	Drink	Nondrink
Xylenes ⁷	1330-20-7	II	480	240	27	10,000 ^a	
Zinc - Diss	7440-66-6	I	Table 35-9			NA	
Zinc - TR	7440-66-6	I	Table 35-9			7,400	26,000
Zirconium	7440-67-7		ID	ID	ID		

* Some of the aquatic life criteria in this table are listed in OAC 3745-1-35; the other aquatic life criteria have been developed pursuant to OAC 3745-1-40. Most of the human health criteria in this table are listed in OAC 3745-1-33 and 3745-1-34; the criteria based on protection against adverse aesthetic effects are listed in OAC 3745-1-37; the other human health criteria have been developed pursuant to OAC 3745-1-04(D) using USEPA guidelines.

Other water quality criteria:

Ohio River criteria - Additional criteria applicable to the Ohio River mainstem are in OAC 3745-1-32. Those criteria supersede the criteria in this table, where applicable.

Wildlife criteria for PCBs – Table 35-12

Agricultural Water Supply criteria - Table 33-3

Recreational (fecal coliform, E. coli) criteria - Table 37-2

Biological (IBI, Miwb, ICI) criteria - Table 7-1

Legend:

All criteria and values are expressed as total unless specified otherwise.

Diss = dissolved; TR = total recoverable; TRes = total residual.

Blank space = Criterion not calculated; contact the Standards & Technical Support section.

ID = Insufficient data available to calculate criterion.

NA = Not applicable.

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IMZM = Inside Mixing Zone Maximum.

OMZM = Outside Mixing Zone Maximum.

OMZA = Outside Mixing Zone Average.

Drink = Human health criterion applicable to Public Water Supply streams (2-route exposure).

Nondrink = Human health criterion - non Public Water Supply (1-route exposure).

Footnotes:

- ¹ The Human Health criterion for this chemical applies to the sum of chloroacetic acid, dichloroacetic acid and trichloroacetic acid.
- ² The Aquatic Life criteria for 1,2-dichloroethylene apply to the sum of cis-1,2-dichloroethylene and trans-1,2-dichloroethylene.
- ³ The Human Health criteria for dinitrophenols apply to the sum of the six dinitrophenol isomers.
- ⁴ The Human Health criteria for endrin apply to the sum of endrin and endrin aldehyde.
- ⁵ The Human Health criteria for nitrosoamines apply to those nitrosoamines not specifically listed in this table.
- ⁶ Regulation of the additive effects of chlorinated dibenzo dioxins and chlorinated dibenzo furans is explained in OAC 3745-2-07.
- ⁷ The Aquatic Life and Human Health criteria for xylenes apply to the sum of m-xylene, o-xylene and p-xylene.
- ⁸ See OAC 3745-1-35 for the applicable wildlife criteria.
- ^a This criterion is the maximum contaminant level (MCL) developed under the “Safe Drinking Water Act”.
- ^b No chlorine is to be discharged.
- ^c This criterion is based on a carcinogenic endpoint.
- ^d Equivalent 25°C specific conductance value is 2400 micromhos/cm.
- ^e Equivalent 25°C specific conductance values are 1200 micromhos/cm as a maximum and 800 micromhos/cm as a thirty-day average.
- ^f This criterion is based on protection against adverse aesthetic effects.

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Table numbers within this table refer to Chapter 3745-1 of the OAC.
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g					Criteria					
Beryllium	Form	Units	Equation	100	200	300	400			
IMZM	TR	ug/l	$e^{(1.609 [\ln H] - 2.181)}$	190	570	1100	1700			
OMZM	TR	ug/l	$e^{(1.609 [\ln H] - 2.874)}$	93	280	540	870			
OMZA	TR	ug/l	$e^{(1.609 [\ln H] - 5.017)}$	11	33	64	100			
h					Criteria					
Silver	Form	Units	Equation	100	200	300	400			
IMZM	Diss	ug/l	$e^{(1.720 [\ln H] - 6.922)}$	2.7	8.9	18	29			
OMZM	Diss	ug/l	$e^{(1.720 [\ln H] - 7.615)}$	1.4	4.5	9.0	15			
IMZM	TR	ug/l	$e^{(1.720 [\ln H] - 6.759)}$	3.2	11	21	35			
OMZM	TR	ug/l	$e^{(1.720 [\ln H] - 7.452)}$	1.6	5.3	11	17			
i					Criteria					
Barium	Form	Units	Equation	100	150	200	250	300	350*	
IMZM	TR	mg/l	$e^{(0.8713 [\ln H] - 2.310)}$	5.5	7.8	10	12	14	16*	
OMZM	TR	mg/l	$e^{(0.8713 [\ln H] - 3.003)}$	2.7	3.9	5.0	6.1	7.1	8.2*	
OMZA	TR	mg/l	$e^{(0.8713 [\ln H] - 4.458)}$	0.64	0.91	1.2	1.4	1.7	1.9*	

*Barium criteria are capped at a water hardness of 350 mg/l

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Strontium	Form	Units	Equation	Criteria					
				100	150	200	250	300	350*
IMZM	TR	mg/l	$e^{(1.299 [\ln H] - 1.279)}$	110	190	270	360	460	560*
OMZM	TR	mg/l	$e^{(1.299 [\ln H] - 1.994)}$	54	92	130	180	230	280*
OMZA	TR	mg/l	$e^{(1.299 [\ln H] - 2.945)}$	21	35	52	69	87	110*

*Strontium criteria are capped at a water hardness of 350 mg/l