

# Effluent and Groundwater Characterization<sup>1</sup>

## Water Reporting Limits and Analytical Methods

Non-Metals	Chemical Abstract Service Number	Water Reporting Limits (ug/L) <sup>2</sup>	EPA Analytical Method or SW-846 <sup>3</sup>	<a href="#">R 323.2222</a> Discharge Standard (ug/L) <sup>4</sup>
Alkalinity		20,000	310.2	
Alkalinity, Bicarbonate		10,000	2320B	
Alkalinity, Carbonate		10,000	2320B	
Ammonia	7664417	10	350.1	5000 (TIN)
BOD-5 Day Carbonate <sup>5</sup>		2000	5210B	
BOD-5 Day Total <sup>5</sup>		2000	5210B	
Chloride	168870006	1000	325.2/4500CL-E	250,000
COD		5000	410.4	
Conductance, Specific		1.0 umhos/cm	120.1/2510B	
Cyanide, Total	57125	5	ASTM D7284	100
Cyanide, Available	57125	5	ASTM7511-09/D6888-09	100
Dissolved Oxygen <sup>5</sup>		100	4500-O	
Hardness (Ca <sub>2</sub> CO <sub>3</sub> )		1000	2340B	
Nitrate	14797558	10	353.2	5000 (TIN)
Nitrate + Nitrite		10	353.2	5000 (TIN)
Nitrite	14797650	10	353.2	500 (TIN)
Nitrogen, Kjeldahl		200	351.2	
Ortho-Phosphate		10	365.1	
pH		0.1 s.u.	4500-H /9045/150.1	6.5 - 9.0 s.u.
Phenols <sup>5</sup>	108952	10	420.4/9066	35
Phosphorus, Total	7723140	10	365.4/365.1	1000
Residue (TDS)		20,000	2540C	
Residue (TSS)		4000	2540D	
Sulfate	14808798	5000	375.2	250,000



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Total Organic Carbon		500	5310C	
Turbidity		1.0 NTU	180.1	

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Aluminum	7429905	5	200.8/6020A	25
Antimony	7440360	1	200.8/6020A	3
Arsenic	7440382	1	200.8/6020A	5
Barium	7740393	5	200.8/6020A	1000
Beryllium	7440417	1	200.8/6020A	2
Boron	7740428	20	200.7/6010C	250
Cadmium	7740439	0.2	200.8/6020A	2.5
Calcium	8047594	1000	200.7/6010C	
Chromium	7740473	1	200.8/6020A	50
Cobalt	7740484	5	200.8/6020A	20
Copper	7740508	1	200.8/6020A	500
Iron	7439896	20	200.7/6010C	300
Lead	7439921	1	200.8/6020A	2
Lithium	7439932	10	200.7/6010C	85
Magnesium	7439954	500	200.7/6010C	200,000
Manganese	7439965	5	200.8/6020A	50
Mercury	7439976	0.2	245.1/7470A, 7471A	1
Molybdenum	7439987	5	200.8/6020A	36.5
Nickel	7440020	2	200.8/6020A	50
Potassium	7440097	200	200.7/6010C	
Selenium	7782492	1	200.8/6020A	25
Silver	7440224	0.2	200.8/6020A	17
Sodium	1734125 2	1000	200.7/6010C	230,000
Strontium	7740246	5	200.8/6020A	2300
Thallium	7740280	2	200.8/6020A	1
Titanium	7440326	5	200.8/6020A	
Vanadium	7740622	2	200.8/6020A	2.2
Zinc	7740666	5	200.8/6020A	1200

Volatile Organics	Chemical Abstract Service Number	Water Reporting Limits (ug/L) <sup>2</sup>	EPA Analytical Method or SW-846 <sup>3</sup>	<a href="#">R 323.2222</a> Discharge Standard (ug/L) <sup>4</sup>
1,1,1,2-Tetrachloroethane	630206	1	624/8260B	77
1,1,1-Trichloroethane	71556	1	624/8260B	15
1,1,2,2-Tetrachloroethane	79345	1	624/8260B	8.5
1,1,2-Trichloroethane	79005	1	624/8260B	5
1,1-Dichloroethane	75343	1	624/8260B	880
1,1-Dichloroethylene	75354	1	624/8260B	7
1,2,3-Trichlorobenzene	87616	5	624/8260B	
1,2,3-Trichloropropane	96184	1	624/8260B	42
1,2,3-Trimethylbenzene	526738	1	624/8260B	
1,2,4-Trichlorobenzene	120821	5	624/8260B	15
1,2,4-Trimethylbenzene	95636	1	624/8260B	63
1,2-Dibromo-3-chloropropane	96128	5	624/8260B	0.2
1,2-Dibromoethane (EDB)	80977	1	624/8260B	
1,2-Dichlorobenzene	95501	1	624/8260B	25
1,2-Dichloroethane	107062	1	624/8260B	5
1,2-Dichloroethylene (cis)	156592	1	624/8260B	5
1,2-Dichloroethylene (trans)	156605	1	624/8260B	5
1,2-Dichloropropane	78875	1	624/8260B	5
1,3,5-Trimethylbenzene (Mesitylene)	108678	1	624/8260B	72
1,3-Dichlorobenzene	541731	1	624/8260B	6.6
1,3-Dichloropropene (cis)	542756	1	624/8260B	8.5
1,3-Dichloropropene (trans)	99614025	1	624/8260B	
1,4-Dichloro-2-butene (trans)	764410	5	624/8260B	
1,4-Dichlorobenzene	106467	1	624/8260B	15
2-Butanone (MEK)	78933	5	624/8260B	450
2-Hexanone	591786	5	624/8260B	1000
2-Methylnaphthalene	91576	5	624/8260B	260
2-Propanone (Acetone)	67641	20	624/8260B	730
4-Methyl-2-pentanone (MIBK)	108101	5	624/8260B	1800
Acrylonitrile	107131	5(2.0)	624/8260B	2.6
t-Amyl Methyl Ether (TAME)	994058	5	624/8260B	190
Benzene	71432	1	624/8260B	5
Bromobenzene	108864	1	624/8260B	18
Bromochloromethane	83847498	1	624/8260B	
Bromodichloromethane	75274	1	624/8260B	20 (THM)
Bromoform	75252	1	624/8260B	20 (THM)
Bromomethane	74839	5	624/8260B	10

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t-Butyl Alcohol	75650	50	624/8260B	3900
n-Butylbenzene	104518	1	624/8260B	80
sec-Butylbenzene	135988	1	624/8260B	80
t-Butylbenzene	98066	1	624/8260B	80
Carbon Disulfide	75150	1	624/8260B	800
Carbon Tetrachloride	56235	1	624/8260B	5
Chlorobenzene	108907	1	624/8260B	15
Chloroethane	75003	5	624/8260B	430
Chloroform	67663	1	624/8260B	20 (THM)
Chloromethane	74873	5	624/8260B	260
Cyclohexane	108941	5	624/8260B	33,000
Dibromochloromethane	124481	1	624/8260B	20 (THM)
Dibromomethane	74953	1	624/8260B	80
Dichlorodifluoromethane	75718	5	624/8260B	40
Diethyl Ether	60297	5	624/8260B	10
Diisopropyl Ether	108203	5	624/8260B	30
Ethylbenzene	100414	1	624/8260B	25
Ethyl-t-Butyl Ether (ETBE)	637923	5	624/8260B	49
Hexachloroethane	67721	5	624/8260B	7.3
Hexane	110543	1	624/8260B	3,000
Isopropyl Benzene	98828	1	624/8260B	800
p-Isopropyl Toluene (p-Cymene)	99876	1	624/8260B	
Methyl Iodide (Iodomethane)	74884	1	624/8260B	
Methyl-t-Butyl Ether (MTBE)	1634044	1	624/8260B	40
Methylene Chloride	75092	5	624/8260B	5
Naphthalene	91203	5	624/8260B	15
n-Propylbenzene	103651	1	624/8260B	80
Styrene	100425	1	624/8260B	20
Tetrachloroethylene	127184	1	624/8260B	5
Tetrahydrofuran	109999	5	624/8260B	95
Toluene	108883	1	624/8260B	35
Trichloroethylene	79016	1	624/8260B	5
Trichlorofluoromethane	75694	1	624/8260B	2600
Vinyl Chloride	75014	1	624/8260B	2
m & p-Xylene	1330207	2	624/8260B	35 (m+o+p)
o-Xylene	1330207	1	624/8260B	35 (m+o+p)

Pesticides, Chlorinated Hydrocarbon & PCBS	Chemical Abstract Service Number	Water Reporting Limits (ug/L) <sup>2</sup>	EPA Analytical Method or SW-846 <sup>3</sup>	<a href="#">R 323.2222</a> Discharge Standard (ug/L) <sup>4</sup>
Aldrin	309002	0.01	80981B/8081	0.098
a-BHC	319846	0.02	80981B/8081	0.43
b-BHC	319857	0.02	80981B/8081	0.88
d-BHC	319868	0.02	80981B/8081	
g-BHC (Lindane)	58899	0.02	80981B/8081	0.2
BP-6 (PBB)	37324235	0.05	80981B/8081	0.03
a-Chlordane	5103719	0.01	80981B/8081	
g-Chlordane	5566347	0.01	80981B/8081	
4,4'-DDD	72548	0.02	80981B/8081	9.1
4,4'-DDE	72559	0.02	80981B/8081	
4,4'-DDT	50293	0.02	80981B/8081	
Dieldrin	60571	0.02	80981B/8081	0.11
Endosulfan I	115297	0.02	80981B/8081	44
Endrin	72208	0.02	80981B/8081	2
Heptachlor	76448	0.01	80981B/8081	0.4
Heptachlor Epoxide	1024573	0.01	80981B/8081	0.2
Hexabromobenzene	87821	0.02	80981B/8081	0.17
Methoxychlor	72465	0.05	80981B/8081	40
Mirex	2385855	0.02	80981B/8081	0.0000068
PCB-1016	38444870	0.1	8082	
PCB-1221	11104282	0.1	8082	
PCB-1232	11141165	0.1	8082	
PCB-1242	53469219	0.1	8082	
PCB-1248	1267229*6	0.1	8082	
PCB-1254	52663624	0.1	8082	
PCB-1260	85760743	0.1	8082	
PCB-1262	37324235	0.1	8082	
PCB-1268	11100144	0.1	8082	
Pentachlorobenzene	608935	0.01	8270C/8121B 608/612	6.1
Pentachloronitrobenzene	82688	0.01	8270C/8121B 608/612	32
Toxaphene	8001352	0.1	80981B/8081	3
1,2,3,4-Tetrachlorobenzene	63697201	0.01	80981B 608/612	
1,2,4,5-Tetrachlorobenzene	95943	0.01	80981B 608/612	1300

Specialty Pesticide Compounds	Chemical Abstract Service Number	Water Reporting Limits (ug/L) <sup>2</sup>	EPA Analytical Method or SW-846 <sup>3</sup>	<a href="#">R 323.2222</a> Discharge Standard (ug/L) <sup>4</sup>
2,4'-DDT	789026	0.01	8081/8082	
tris (2,3-Dibromopropyl) Phosphate	126727	10	8081/8082	0.71
Technical Chlordane	12789036	0.05	8081/8082	

Polynuclear Aromatic Hydrocarbons (PNA or PAH)	Chemical Abstract Service Number	Water Reporting Limits (ug/L) <sup>2</sup>	EPA Analytical Method or SW-846 <sup>3</sup>	<a href="#">R 323.2222</a> Discharge Standard (ug/L) <sup>4</sup>
Acenaphthene	83329	1	8270C/8310	40
Acenaphthylene	208968	1	8270C/8310	52
Anthracene	120127	1	8270C/8310	40
Benzo(a)anthracene	56553	1	8270C/8310	2.1
Benzo(b)fluoranthene	205992	1	8270C/8310	1.5
Benzo(k)fluoranthene	207089	1	8270C/8310	0.8
Benzo(g,h,i)perylene	191242	1	8270C/8310	0.26
Benzo(a)pyrene	50328	1	8270C/8310	1.62
Chrysene	218019	1	8270C/8310	1.6
Dibenzo(a,h)anthracene	53703	2	8270C/8310	0.21
Fluoranthene	206440	1	8270C/8310	210
Fluorene	86737	1	8270C/8310	880
Indeno(1,2,3-cd)pyrene	193395	2	8270C/8310	0.22
2-Methylnaphthalene	91576	5	8270C/8310	260
Naphthalene	91203	1	8270C/8310	15
Phenanthrene	85018	1	8270C/8310	52
Pyrene	129000	1	8270C/8310	30

Phenols (Acids)	Chemical Abstract Service Number	Water Reporting Limits (ug/L) <sup>2</sup>	EPA Analytical Method or SW-846 <sup>3</sup>	<a href="#">R 323.2222</a> Discharge Standard (ug/L) <sup>4</sup>
2-Chlorophenol	95578	10	8270C/8041A	5
4-Chloro-3-Methylphenol	59507	5	8270C/8041A	150
2,4-Dichlorophenol	120832	10	8270C/8041A	20
2,4-Dimethylphenol	105679	5	8270C/8041A	80
2,4-Dinitrophenol	51285	25	8270C/8041A	
2-Methyl-4,6-Dinitrophenol	534521	20	8270C/8041A	2.6
2-Methylphenol	95487	10	8270C/8041A	20
3-Methylphenol	108394	20	8270C/8041A	370
4-Methylphenol	106445	20	8270C/8041A	10
2-Nitrophenol	88755	5	8270C/8041A	20
4-Nitrophenol	824782	25	8270C/8041A	
Pentachlorophenol	87865	20	8270C/8041A	1
Phenol	108952	5	8270C/8041A	35
2,4,5-Trichlorophenol	95954	5	8270C/8041A	730
2,4,6-Trichlorophenol	88062	4	8270C/8041A	15

Notes:

<sup>1</sup> – This document is an incomplete list of potential wastewater pollutants. [Rule 323.2220](#) requires an applicant to identify the substances that are or may be present in a discharge in light of the processes that generate the wastewater. This includes the raw materials being used, chemical additives, intermediates, intentional byproducts, and unintentional byproducts. If your discharge contains a potential pollutant not found on this list, contact the Water Resources Division, Groundwater Permits Unit at 517-284-5567 for additional information.

<sup>2</sup> - Unless noted, the water reporting limits are based on Remediation and Redevelopment Division's (RRD) [Reporting Limits, Test Capabilities, and Target Analyte List](#).

<sup>3</sup> – Analytical Methods provided do not include all approved methods. The methods provided are from the previous 2019 list and updated based on RRD's [Reporting Limits, Test Capabilities, and Target Analyte List](#).

<sup>4</sup> – The discharge standards listed represent the minimum detection level a selected analytical method must achieve. See the [Part 22 Standards List](#) for more detailed information on the Part 22 Discharge Standards.

<sup>5</sup> – Analyte is not included in RRD's Reporting Limits, Test Capabilities, and Target Analyte List of Inorganic Non-Metals.

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