Montréal Division de l'expertise technique	MUNICIPAL DRINKING WATER PRODUCED BY ATWATER AND CHARLES-J DES BAILLETS DRINKING WATER TREATMENT PLANTS	2014

PARAMETERS	HEALTH CANADA RECOMMENDATIONS (2014)	QUEBEC REGULATION DRINKING WATER QUALITY (Q-2,r.40)	MONTREAL'S DRINKING WATER CONCENTRATION		
			MIN.	AVE.	MAX
PHYSICAL PROPERTIES					
Specific Conductivity (µS/cm) **	-	-	255	307	336
Color (T.C.U.) **	≤ 15[1]	-	0	2	10
Agressivity index pH+log(alk*hard.)) **	-	-	11.5	12.0	12.4
Ryznar index (2pHs-pH) **	-	-	7.8	8.7	9.8
Langelier's saturation index (pH-pHs) **	-	-	-0.94	-0.38	0.33
pH	6,5-8,5	6,5-8,5	6.8	7.7	8.2
Solids (mg/L) **	-	-	129	144	175
Total solids(mg/L) **	≤ 500[1]	-	164	182	276
Temperature (°C) **	-	-	0	11	24
Turbidity (N.T.U.)	≤ 1[5]	≤ 5 / ≤ 1 [2]	0.14	0.35	2.14
BIOLOGICAL CHARACTERISTICS					
			ANNUAL AVERAGE		
Total coliforms (C.F.U../100mL)	> 90 % ABS[4]	> 90 % ABS[4]	99.96 % ABS[4]		
E.coli (C.F.U./100mL)	ABS[4]	< 1 or ABS[4]	100 % ABS[4]		
HPC (C.F.U./mL)	–	–	< 0.90 (geometric mean)		

INORGANIC AND ORGANIC CHEMICAL CHARACTERISTICS (mg/L)

			MIN	AVE.	MAX
Antimony	≤ 0,006	≤ 0,006	0.00012	0.00012	0.00012
Alkalinity (eq.$CaCO_3$) **	-	-	77	88	95
Aluminum (Al)	≤ 0,1	-	0.00437	0.08266	0.34153
Silver (Ag)	-	-	< 0.00003	0.00003	0.00004
Arsenic (As)	≤ 0,010	≤ 0,010	0.00062	0.00070	0.00077
Barium (Ba)	≤ 1	≤ 1,0	0.02180	0.02234	0.02287
Bore (B)	≤ 5	≤ 5,0	0.04	0.05	0.05
Bromated (BrO_3)*	≤ 0,01	≤ 0,010	<0.0001	<0.0002	<0.0005
Cadmium (Cd)	≤ 0,005	≤ 0,005	<0.00003	<0.00003	<0.00003
Calcium (Ca)	-	-	26.80	31.02	33.91
Total Organic Carbon (TOC) **	-	-	1.18	2.05	4.52
Chlorides (Cl) **	≤ 250 [1]	-	23.40	26.15	28.33
Chromium (Cr)	≤ 0,05	≤ 0,050	0.00003	0.00005	0.00007
Cobalt (Co)	-	-	< 0.00002	0.00003	0.00006
Copper (Cu) [7]	≤ 1,0 [1]	≤ 1,0	0.0832	0.0931	0.1031
Cyanides (CN)	≤ 0,2	≤ 0,20	<0.004	<0.004	<0.004
Total Hardness (eq.$CaCO_3$) **	-	-	99	115	126
Iron (Fe)	≤ 0,3 [1]	-	0.01	0.03	0.07
Fluorides (F)	≤ 1,5	≤ 1,50	0.12	0.13	0.13
Magnesium (Mg)	-	-	6.94	8.03	9.27
Manganese (Mn)	≤ 0,05 [1]	-	0.00001	0.00026	0.00106
Mercury (Hg)	≤ 0,001	≤ 0,001	<0.00003	<0.00003	<0.00003
Nickel (Ni)	-	-	0.00003	0.00046	0.00059
Nitrites + nitrates (N)	≤ 10	≤ 10,0	0.19	0.30	0.40
Phosphates (total) (P) **	-	-	0.006	0.007	0.008
Lead (Pb) [7]	≤ 0,01	≤ 0,010	0.00080	0.00102	0.00124
Potassium (K)	-	-	1.35	1.55	1.73
Selenium (Se)	≤ 0,05	≤ 0,010	<0.0002	<0.0002	<0.0002
Silica (SiO_2) **	-	-	0.41	1.01	1.70
Sodium (Na)	≤ 200 [1]	-	10.97	14.07	17.60
Sulfates (SO_4) **	≤ 500 [1]	-	19.96	24.02	27.13
Uranium (U)	≤ 0,02	≤ 0,020	0.00035	0.00035	0.00035
Zinc (Zn)	≤ 5,0 [1]	-	< 0.00017	0.00110	0.00307

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			MAXIMUM DETECTED
ORGANIC COMPOUNDS			
CARBAMATES (µg/L)			
Bendiocarb*	≤ 40	≤ 27	N.D.
Carbaryl*	≤ 90	≤ 70	N.D.
Carbofuran*	≤ 90	≤ 70	N.D.
VOLATILE ORGANIC COMPOUNDS (VOC) (µg/L)			
1,1,1,2-Tétrachloroethane	-	-	N.D.
1,1,1-Trichloroethane	-	-	N.D.
1,1,2,2-Tétrachloroethane	-	-	N.D.
1,1,2-Trichloroethane	-	-	N.D.
1,1-Dichloroethane	-	-	N.D.
1,1-Dichloroethylene	≤ 14	≤ 10	N.D.
1,1-Dichloropropene	-	-	N.D.
1,2,3-Trichlorobenzene	-	-	N.D.
1,2,3-Trichloropropane	-	-	N.D.
1,2,4-Trichlorobenzene	-	-	N.D.
1,2,4-Triméthylbenzene	-	-	N.D.
1,2-Dibromo-3-chloropropane	-	-	N.D.
1,2-Dibromoethane	-	-	N.D.
1,2-Dichlorobenzene	≤ 200	≤ 150	N.D.
1,2-Dichloroethane	≤ 5	≤ 5	N.D.
1,2-Dichloropropane	-	-	N.D.
1,3,5-Triméthylbenzene	-	-	N.D.
1,3-Dichlorobenzene	-	-	N.D.
1,3-Dichloropropane	-	-	N.D.
1,4-Dichlorobenzene	≤ 5	≤ 5	N.D.
1-Chlorobutane	-	-	N.D.
1-Propene,3-chloro	-	-	N.D.
2,2-Dichloropropane	-	-	N.D.
2-Butanone	-	-	N.D.
2-Chlorotoluene	-	-	N.D.
2-Nitropropane	-	-	N.D.
4-Chlorotoluene	-	-	N.D.
4-Isopropyltoluene	-	-	N.D.
Acrylonitrile	-	-	N.D.
Benzene	≤ 5	≤ 0.5	N.D.
Bromobenzene	-	-	N.D.
Bromochloromethane	-	-	N.D.
Bromoform	-	See note 3	0.3[6]
Bromodichloromethane	-	See note 3	14.8[6]
Bromomethane	-	-	N.D.
Chloroacetonitrile	-	-	N.D.
Chlorobenzene	≤ 80	≤ 80	N.D.
Chlorodibromomethane	-	See note 3	4.9[6]
Chloroethane	-	-	N.D.
Chloroform	-	See note 3	85.9[6]
Chloromethane	-	-	N.D.
Vinyl chloride	≤ 2	≤ 2	N.D.

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			MAXIMUM DETECTED
cis-1,2-Dichloroethylene	-	-	N.D.
cis-1,3-Dichloropropene	-	-	N.D.
Dibromomethane	-	-	N.D.
Dichlorodifluoromethane	-	-	N.D.
Dichloromethane	≤ 50	≤ 50	N.D.
Diethylether	-	-	N.D.
Carbon disulfide	-	-	N.D.
Ethylbenzene	≤ 140 and ≤ 1.6[1]	-	N.D.
Hexachlorobutadiene	-	-	N.D.
Hexachloroethane	-	-	N.D.
Isopropylbenzene	-	-	N.D.
Methacrylonitrile	-	-	N.D.
Methyl acrylate	-	-	N.D.
Methyl methacrylate	-	-	N.D.
MTBE(methyl tert-butyl ether)	≤ 1.5[1]	-	N.D.
m-Xylene + p-Xylene + o-Xylene	≤ 300[1]	-	N.D.
Naphthalene	-	-	N.D.
n-Butylbenzene	-	-	N.D.
n-Propylbenzene	-	-	N.D.
Propionitrile	-	-	N.D.
sec-Butylbenzene	-	-	N.D.
Styrene	-	-	N.D.
tert-Butylbenzene	-	-	N.D.
Tetrachloroethylene	≤ 30	≤ 30	N.D.
Carbon tetrachloride	2	≤ 5	N.D.
Tetrahydrofurane	-	-	N.D.
Toluene	≤ 60 and ≤ 24[1]	-	N.D.
trans-1,2-Dichloroethylene	-	-	N.D.
trans-1,3-Dichloropropene	-	-	N.D.
Trans-1,4-dichloro-2-butene	-	-	N.D.
Trichloroethylene	≤ 5	≤ 5	N.D.
Trichlorofluoromethane	-	-	N.D.
Trihalomethanes (THM) (total)	-	See note 3	98[6]
Trihalomethanes (THM) (total) – Annual mean concentration	≤ 100	≤ 80[3]	60.7
PHENOLIC COMPOUNDS (µg/L)			
2,3,4,6-Tetrachlorophenol *	≤ 100	≤ 70	N.D.
2,4 -Dichlorophenol *	≤ 900	≤ 700	N.D.
2,4,6-Trichlorophenol *	≤ 5	≤ 5	N.D.
Pentachlorophenol *	≤ 60	≤ 42	N.D.
GLYPHOSATE (µg/L)			
Glyphosate*	≤ 280	≤ 210	N.D.
PAH (µg/L)			
Benzo(a)pyrene *	≤ 0,01	≤ 0,01	N.D.
TRIAZINES HERBICIDES (µg/L)			
Atrazine and metabolites*	≤ 5	≤ 3.5	N.D.
Cyanazine*	≤ 10	≤ 9	N.D.
Metribuzine*	≤ 80	≤ 60	N.D.
Simazine*	≤ 10	≤ 9	N.D.

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			MAXIMUM DETECTED
CHLOROPHENOXY ACID AND TRICHLOROACETATE PESTICIDES (µg/L)			
2,4-D*	**≤ 100**	**≤ 70**	**N.D.**
Dicamba*	**≤ 120**	**≤ 85**	**N.D.**
Dinoseb*	**≤ 10**	**≤ 7**	**N.D.**
Picloram*	**≤ 190**	**≤ 140**	**N.D.**
ORGANOCHLORINE PESTICIDES (µg/L)			
Metolachlor*	**≤ 50**	**≤ 35**	**N.D.**
Methoxychlor *	**≤ 900**	**≤ 700**	**N.D.**
Trifluralin*	**≤ 45**	**≤ 35**	**N.D.**
ORGANOPHOSPHORUS PESTICIDES (µg/L)			
Azinphos-methyl*	**≤ 20**	**≤ 17**	**N.D.**
Chlorpyrifos*	**≤ 90**	**≤ 70**	**N.D.**
Diazinon *	**≤ 20**	**≤ 14**	**N.D.**
Dimethoate*	**≤ 20**	**≤ 14**	**N.D.**
Diuron*	**≤ 150**	**≤ 110**	**N.D.**
Malathion*	**≤ 190**	**≤ 140**	**N.D.**
Parathion *	**≤ 50**	**≤ 35**	**N.D.**
Phorate*	**≤ 2**	**≤ 1.4**	**N.D.**
Terbufos*	**≤ 1**	**≤ 0.5**	**N.D.**
OTHERS (µg/L)			
Haloacetic acids*- Annual mean concentration	**≤ 100**	**≤ 60**	**29.3**
Nitrilotriacetic acid	**≤ 400**	**≤ 200**	**35**
Bromoxynil*	**≤ 5**	**≤ 3.5**	**N.D.**
Methyl-Diclofop*	**≤ 9**	**≤ 7**	**N.D.**
Diquat *	**≤ 70**	**≤ 50**	**N.D.**
Paraquat *	**≤ 10**	**≤ 7**	**N.D.**

* : Analyzed by an outside accreditated laboratory
** : At the exit of water treatment plant
N.D. : Not detected, lower than the detection limit method
D. : Detected, but cannot determine quantity

Notes :

1 Esthetical or organoleptic reasons

2 Turbidity must be equal or under 5 NTU and must not overpass 1,0 NTU for more than 5 % of total measures taken within 30 days.

3 The annual mean concentration of total THM (chloroform, bromodichloromethane, chlorodibromomethane and bromoform) must not exceed 80 µg/L (samples taken at the end of drinking water distribution network)

4 ABS : absence

5 Health reasons objectives

6 Maximum obtained for a sampling site

7 Lead and copper level at the center of water distribution network. When water samples are taken from lead service lines, results are shown below

Water distribution network	MIN	AVERAGE	MAX
Lead (mg/L			
Montréal	0.01024	0.019634	0.06046
Copper (mg/L)			
Montréal	0.02794	0.05694	0.09950