

Johannesburg Metro Water Quality Report - 12 Month

23 January 2017 to 22 January 2018

Date generated: 01 February 2018

Determinand	Measurement units	Risk	Required compliance to SANS 241: 2015 standard (%)	SANS 241: 2015 standard limits (1)	No of results	Achieved Compliance to SANS 241: 2015 Spec(%)	Descriptive statistics		
							Mean	Standard Deviation	Mean + 3 standard deviations
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	3 510	100.0%	0	0.20	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	3 510	99.9%	0	0.63	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	3 497	99.5%	15	165.46	181
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	775	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	353	99.7%	5.19	2.62	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 482	100.0%	18.81	1.91	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	436	100.0%	134.05	9.10	150.00
Turbidity	(NTU)	Operational	95.0%	≤1	2 861	99.9%	0.30	0.40	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 861	99.9%	0.30	0.40	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 480	100.0%	7.90	0.16	8.33
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 444	100.0%	0.28	0.16	0.57
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	365	100.0%	10.17	1.31	13.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	3 515	100.0%	0.27	0.41	1.93
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	2 788	100.0%	1.49	0.51	2.07
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	365	100.0%	0.18	0.04	0.37
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 483	100.0%	0.52	0.12	0.94
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 483	100.0%	0.04	0.05	0.29
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 483	100.0%	0.09	0.06	0.38
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine; ≥0.1 Sum of Free and Monochloramine	3 515	97.5%	1.46	0.56	2.19
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	353	100.0%	8.04	0.76	9.95
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	365	100.0%	13.02	2.08	16.36
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	365	100.0%	13.02	2.08	16.36
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	353	100.0%	0.02	0.01	0.06
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	353	100.0%	29.61	12.24	86.40
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	322	100.0%	0.52	0.16	0.91
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	351	100.0%	0.89	0.71	3.60
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	351	100.0%	31.96	5.57	47.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	353	100.0%	26.12	10.69	60.68
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	350	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	353	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	353	100.0%	12.46	8.52	32.48
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	330	100.0%	5.34	2.81	10.59
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	353	100.0%	21.66	25.47	142.40
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	353	100.0%	21.66	25.47	142.40
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	350	100.0%	0.30	0.48	2.51
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	353	100.0%	10.21	1.87	16.40
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	353	100.0%	10.21	1.87	16.40
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	330	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	353	100.0%	10.00	0.05	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	351	100.0%	0.95	1.12	6.15
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	321	100.0%	0.21	0.06	0.46
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	344	100.0%	3.73	0.71	5.60
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	296	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	341	100.0%	47.12	9.39	76.00
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	340	100.0%	0.51	0.14	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	340	100.0%	1.32	1.25	3.88
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	340	100.0%	13.14	2.00	17.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	340	100.0%	0.39	0.06	0.55
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	179	100.0%	0.33	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	353	100.0%	17.12	2.40	23.48
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	353	100.0%	62.14	7.48	77.96
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	353	100.0%	5.58	0.82	6.95
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	352	100.0%	3.52	0.52	4.55
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	1 193	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	1 193	100.0%	1.00	0.00	1.00

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.97%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.97%
Operational	95.00%	99.36%

Notes:

- (1) Specification date of effect : 1 July 2016
- (2) Free chlorine : Results from both the chlorinated and chloraminated systems
- (3) Monochloramine : Results are from the chloraminated systems
- (4) Residual disinfectant : Results from both the chlorinated and chloraminated systems
- (5) Measured at water treatment works exit points
- (6) Customer request: Results not included in the risk indices compliance calculations
- (7) (NO₂/0.9 + NO₃/11)
- (8) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)