

Johannesburg Metro Water Quality Report - 12 Month

23 March 2017 to 22 March 2018 Date generated: 03 April 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	3 513	100.0%	0	0.20	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	3 513	99.9%	0	0.66	1
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	3 500	99.6%	14	152.13	199
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	786	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	358	100.0%	5.07	0.33	7.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	2 493	100.0%	18.92	1.79	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	444	100.0%	134.68	8.75	150.00
Turbidity	(NTU)	Operational	95.0%	≤1	2 875	99.9%	0.30	0.15	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	2 875	100.0%	0.30	0.15	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	2 491	100.0%	7.89	0.14	8.32
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	2 411	100.0%	0.29	0.17	0.61
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	370	100.0%	10.36	1.24	13.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	3 518	100.0%	0.26	0.40	1.88
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	2 791	100.0%	1.50	0.51	2.07
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	370	100.0%	0.19	0.04	0.36
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	2 494	100.0%	0.48	0.10	0.89
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	2 494	100.0%	0.04	0.05	0.25
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	2 494	100.0%	0.09	0.05	0.33
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine; ≥0.1 Sum of Free and Monochloramine	3 518	97.5%	1.45	0.57	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	358	100.0%	8.33	0.88	12.00
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	370	100.0%	13.23	1.24	16.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	370	100.0%	13.23	1.24	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	358	100.0%	0.02	0.01	0.06
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	358	100.0%	30.82	14.41	89.00
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	357	100.0%	0.52	0.17	1.42
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	356	100.0%	1.02	0.85	4.04
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	356	100.0%	33.45	6.39	52.90
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	358	100.0%	26.10	10.62	57.38
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	355	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	358	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	358	100.0%	12.82	9.02	37.86
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	349	100.0%	5.35	2.76	11.52
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	358	100.0%	22.23	25.26	131.45
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	358	100.0%	22.23	25.26	131.45
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	355	100.0%	0.30	0.49	2.68
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	358	100.0%	10.20	1.86	16.15
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	358	100.0%	10.20	1.86	16.15
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	357	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	358	100.0%	10.00	0.05	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	356	100.0%	1.04	1.17	5.85
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	357	100.0%	0.22	0.11	0.78
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	349	100.0%	3.77	0.71	5.60
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	301	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	346	100.0%	46.87	9.10	75.75
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	345	100.0%	0.51	0.14	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	345	100.0%	1.24	1.20	2.90
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	345	100.0%	13.38	2.15	18.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	345	100.0%	0.40	0.06	0.55
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	184	100.0%	0.32	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	358	100.0%	17.18	2.43	23.43
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	358	100.0%	63.18	7.98	81.43
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	358	100.0%	5.84	0.94	8.69
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	357	100.0%	3.73	0.40	4.54
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	1 189	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	1 189	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%	99.99%
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)