

Tshwane Metro Water Quality Report - 12 Month

23 January 2018 to 22 January 2019

Date generated: 11 February 2019

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	993	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	993	100.0%	0	0.07	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	993	100.0%	3	14.62	46
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	191	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	841	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	68	100.0%	5.26	0.61	7.11
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	993	100.0%	20.67	1.28	24.51
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	68	100.0%	144.34	6.80	164.73
Turbidity	(NTU)	Operational	95.0%	≤1	980	99.8%	0.31	0.09	0.58
Turbidity	(NTU)	Aesthetic	95.0%	≤5	980	100.0%	0.31	0.09	0.58
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	992	100.0%	8.00	0.11	8.33
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	993	100.0%	0.31	0.12	0.66
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	76	100.0%	11.43	0.86	14.00
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	992	100.0%	0.10	0.11	0.44
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	991	100.0%	1.29	0.37	2.39
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	76	100.0%	0.20	0.01	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	993	100.0%	0.46	0.04	0.59
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	993	100.0%	0.04	0.03	0.14
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	993	100.0%	0.08	0.04	0.21
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	992	100.0%	1.39	0.36	2.48
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	91	100.0%	9.46	1.06	12.64
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	76	100.0%	15.04	1.40	19.24
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	76	100.0%	15.04	1.40	19.24
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	91	100.0%	0.09	0.25	0.83
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	91	100.0%	29.81	9.74	59.03
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	254	100.0%	0.57	0.37	1.68
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	68	100.0%	1.92	2.50	9.41
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	91	100.0%	43.43	5.92	61.19
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	91	100.0%	16.76	9.80	46.17
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	68	100.0%	1.90	0.69	3.98
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	91	100.0%	10.71	4.98	25.64
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	91	100.0%	9.28	1.30	13.18
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	68	100.0%	15.37	6.98	36.31
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	91	100.0%	14.61	10.94	47.43
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	91	100.0%	14.61	10.94	47.43
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	68	100.0%	1.96	2.52	9.52
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	91	100.0%	7.12	3.49	17.58
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	91	100.0%	7.12	3.49	17.58
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	254	100.0%	0.78	0.11	1.12
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	91	100.0%	7.86	2.49	15.32
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	68	100.0%	2.97	2.44	10.30
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	254	100.0%	0.39	0.33	1.39
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	68	100.0%	3.95	0.51	5.47
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	68	100.0%	4.12	1.00	7.12
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	67	100.0%	34.96	4.84	49.48
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	67	100.0%	4.75	4.76	19.03
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	67	100.0%	5.64	3.97	17.55
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	67	100.0%	13.96	1.28	17.81
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	67	100.0%	0.45	0.08	0.69
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	195	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	91	100.0%	17.58	2.44	24.89993128
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	91	100.0%	66.91	9.37	95.03
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	91	100.0%	6.63	1.07	9.83
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	91	100.0%	3.35	0.53	4.94
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	192	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	192	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%	100.00%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.97%

- Notes:**
- (1) Specification date of effect : 1 July 2016
 - (2) Free chlorine : Results from chloraminated system
 - (3) Monochloramine : Results are from the chloraminated systems
 - (4) Residual disinfectant : Results from chloraminated system
 - (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)