

Tshwane 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	1 033	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 033	100.0%	0	0.08	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 018	99.9%	5	55.53	50
<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	67	100.0%	5.09	0.42	6.68
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	1 033	100.0%	19.02	1.61	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	67	100.0%	136.27	6.59	150.00
Turbidity	(NTU)	Operational	95.0%	≤1	1 012	99.7%	0.31	0.16	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	1 012	100.0%	0.31	0.16	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	1 033	100.0%	7.90	0.13	8.32
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	1 033	100.0%	0.30	0.11	0.51
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	72	100.0%	10.78	1.25	13.29
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	1 033	100.0%	0.16	0.30	1.61
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	1 033	100.0%	1.20	0.42	1.86
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	72	100.0%	0.18	0.02	0.23
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	1 030	100.0%	0.48	0.08	0.76
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	1 033	100.0%	0.05	0.07	0.39
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	1 029	100.0%	0.10	0.08	0.47
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	1 033	99.8%	1.36	0.34	1.94
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	77	100.0%	8.51	1.08	11.24
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	72	100.0%	13.13	0.79	14.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	72	100.0%	13.13	0.79	14.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	77	100.0%	0.02	0.01	0.04
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	77	100.0%	32.78	14.66	85.24
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	67	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	67	100.0%	0.99	0.80	3.44
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	76	100.0%	34.66	7.77	56.50
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	77	100.0%	25.18	1.60	28.36
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	67	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	77	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	77	100.0%	10.01	0.11	10.24
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	67	100.0%	5.03	0.22	5.61
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	77	100.0%	20.04	13.74	67.64
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	77	100.0%	20.04	13.74	67.64
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	67	100.0%	0.23	0.13	0.81
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	77	100.0%	10.00	0.00	10.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	77	100.0%	10.00	0.00	10.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	67	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	77	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	67	100.0%	0.94	0.97	4.53
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	67	100.0%	0.23	0.21	0.80
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	67	100.0%	3.91	0.83	7.08
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	67	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	66	100.0%	46.00	6.74	59.50
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	66	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	66	100.0%	1.26	0.56	2.48
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	66	100.0%	13.58	2.00	17.40
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	66	100.0%	0.40	0.06	0.51
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	77	100.0%	17.49	2.48	22.24
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	77	100.0%	64.45	8.73	86.48
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	77	100.0%	5.99	0.93	8.95
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	77	100.0%	3.77	0.38	4.55
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	190	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	190	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%	99.90%

- 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)