

Tshwane Metro Water Quality Report - 12 Month

21 July 2017 to 20 July 2018 Date generated: 03 August 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	1 010	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 010	100.0%	0	0.08	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 010	100.0%	2	7.68	41
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	185	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	800	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	67	100.0%	5.21	0.57	7.34
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	1 010	100.0%	19.76	1.61	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	67	100.0%	139.33	8.21	160.00
Turbidity	(NTU)	Operational	95.0%	≤1	994	99.8%	0.32	0.09	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	994	100.0%	0.32	0.09	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	1 009	100.0%	7.92	0.12	8.19
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	1 010	100.0%	0.31	0.11	0.49
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	73	100.0%	11.21	1.16	13.28
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	1 009	100.0%	0.16	0.29	1.62
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	1 001	100.0%	1.22	0.41	1.87
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	73	100.0%	0.19	0.01	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	1 008	100.0%	0.44	0.03	0.50
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	1 010	100.0%	0.05	0.07	0.35
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	1 007	100.0%	0.09	0.08	0.43
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	1 009	99.8%	1.36	0.35	1.96
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	85	100.0%	9.21	1.15	11.16
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	73	100.0%	14.29	1.25	17.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	73	100.0%	14.29	1.25	17.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	85	100.0%	0.02	0.03	0.11
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	85	100.0%	30.80	11.03	77.32
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	67	100.0%	0.51	0.04	0.75
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	67	100.0%	0.86	0.82	3.44
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	85	100.0%	39.00	8.52	56.32
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	85	100.0%	25.00	0.00	25.00
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	85	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	85	100.0%	10.11	0.77	11.96
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	67	100.0%	7.94	5.97	20.00
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	85	100.0%	15.24	12.69	66.76
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	85	100.0%	15.24	12.69	66.76
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	67	100.0%	0.39	0.47	2.27
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	85	100.0%	10.04	0.33	10.48
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	85	100.0%	10.04	0.33	10.48
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	85	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	67	100.0%	1.05	0.95	4.53
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	67	100.0%	0.34	0.49	2.80
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	67	100.0%	3.79	0.42	4.74
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%	40.05	7.43	58.20
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%	1.75	0.64	2.80
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	66	100.0%	13.96	1.70	17.40
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	66	100.0%	0.39	0.04	0.51
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	189	100.0%	0.31	0.00	0.31
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	85	100.0%	18.02	2.47	22.16
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	85	100.0%	67.68	9.10	86.32
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	85	100.0%	6.54	1.09	8.93
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	85	100.0%	3.76	0.34	4.53
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%	99.93%

- Notes:**
- Specification date of effect : 1 July 2016
 - Free chlorine : Results from chloraminated system
 - Monochloramine : Results are from the chloraminated systems
 - Residual disinfectant : Results from chloraminated system
 - Measured at water treatment works exit points
 - Customer request: Results not included in the risk indices compliance calculations
 - (NO₂/0.9 + NO₃/11)
 - (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)