RAND WATER

Tshwane Water Quality Report

21 November 2020 to 22 December 2020 | **1 Month** | **Date generated: 08 January 2021**

Determinands	Measurement Units	Risks	SANS 241:2015 standard limits (1)	No of results	Required compliances to SANS 241:2015 spec(%)	Achieved compliances to SANS 241:2015 spec(%)	Descriptive Statistics: Mean	Standard Deviation	Mean + 3 Std deviations
Microbiological determinands									
E. coli	(mpn per 100 mL)	Acute health	Non-detect	54	99.0%	100%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	≤ 10	54	95.0%	100%	0	0.14	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	≤ 1000	86	95.0%	100%	2	8.29	27
Cryptosporidium spp (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	100%	0	0.00	0
Giardia spp (2)	(org / 10 Litre)	Acute health	Non-detect	17	99.0%	100%	0	0.00	0
Somatic Coliphages (2)	(count per 10 mL)	Operational	Non-detect	89	95.0%	100%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	≤ 15	13	95.0%	100%	6.69	1.11	10.02
Conductivity	(mS / m)	Aesthetic	≤ 170	86	95.0%	100%	21.41	3.08	30.65
Total Dissolved Solids	(mg / L)	Aesthetic	≤ 1200	13	95.0%	100%	146.92	17.74	200.15
Turbidity	(NTU)	Operational	≤ 1	86	95.0%	100%	0.27	0.05	0.41
Turbidity	(NTU)	Aesthetic	≤ 5	86	95.0%	100%	0.27	0.05	0.41
pH	(pH units)	Operational	≥ 5 to ≤ 9.7	86	95.0%	100%	8.05	0.12	8.41
Chemical Properties: Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	≤ 1.5	86	95.0%	100%	0.29	0.15	0.75
Chloride	(mg / L as Cl)	Aesthetic	≤ 300	13	95.0%	100%	11.23	1.15	14.67
Free chlorine	(mg / L as Cl_2)	Chronic health	≤ 5	86	97.0%	100%	0.08	0.03	0.16
Monochloramine	(mg / L as Cl_2)	Chronic health	≤ 4.1	86	97.0%	100%	1.31	0.28	2.15
Fluoride	(mg / L as F)	Chronic health	≤ 1.5	13	97.0%	100%	0.25	0.06	0.43
Nitrate	(mg / L as N)	Acute health	≤ 11	85	99.0%	100%	0.52	0.04	0.63
Nitrite	(mg / L as N)	Acute health	≤ 0.9	86	99.0%	100%	0.13	0.20	0.73
Combined nitrate plus nitrite (3)	(mg / L as N)	Acute health	≤ 1	86	99.0%	100%	0.23	0.24	0.96
Residual disinfectant (4)	(mg / L as Cl_2)	Operational	≥ 0.1	86	95.0%	100%	1.38	0.29	2.24
Sodium	(mg / L as Na)	Aesthetic	≤ 200	14	95.0%	100%	7.20	1.74	12.41
Sulphate	(mg / L as SO_4)	Aesthetic	≤ 250	13	95.0%	100%	15.08	0.86	17.66
Sulphate	(mg / L as SO_4)	Acute health	≤ 500	13	99.0%	100%	15.08	0.86	17.66
Zinc	(mg / L as Zn)	Aesthetic	≤ 5	11	95.0%	100%	0.01	0.00	0.02
Chemical Properties: Micro determinands									
Aluminium	(µg / L as Al)	Operational	≤ 300	14	95.0%	100%	24.20	7.39	46.37
Antimony	(µg / L as Sb)	Chronic health	≤ 20	13	97.0%	100%	0.60	0.00	0.60
Arsenic	(µg / L as As)	Chronic health	≤ 10	14	97.0%	100%	0.80	0.00	0.80
Barium	(µg / L as Ba)	Chronic health	≤ 700	14	97.0%	100%	36.07	4.18	48.61
Boron	(µg / L as B)	Chronic health	≤ 2400	14	97.0%	100%	4.66	3.97	16.56
Cadmium	(µg / L as Cd)	Chronic health	≤ 3	14	97.0%	100%	1.00	0.00	1.00
Chromium (Total)	(µg / L as Cr)	Chronic health	≤ 50	14	97.0%	100%	0.50	0.00	0.50
Copper	(µg / L as Cu)	Chronic health	≤ 2000	14	97.0%	100%	4.70	2.72	12.85
Cyanide (Recoverable)	(µg / L as CN)	Acute health	≤ 200	13	99.0%	100%	5.00	0.00	5.00
Iron	(µg / L as Fe)	Chronic health	≤ 2000	13	97.0%	100%	105.39	16.64	155.31
Iron	(µg / L as Fe)	Aesthetic	≤ 300	13	95.0%	100%	105.39	16.64	155.31
Lead	(µg / L as Pb)	Chronic health	≤ 10	14	97.0%	100%	2.00	0.00	2.00
Manganese	(µg / L as Mn)	Chronic health	≤ 400	14	97.0%	100%	2.91	1.98	8.85
Manganese	(µg / L as Mn)	Aesthetic	≤ 100	14	95.0%	100%	2.91	1.98	8.85
Mercury	(µg / L as Hg)	Chronic health	≤ 6	14	97.0%	100%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	≤ 70	14	97.0%	100%	3.00	0.00	3.00
Selenium	(µg / L as Se)	Chronic health	≤ 40	14	97.0%	100%	4.00	0.00	4.00
Uranium	(µg / L as U)	Chronic health	≤ 30	13	97.0%	100%	0.50	0.00	0.50
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	≤ 10	13	97.0%	100%	2.75	0.11	3.09
Phenols as C_6H_5OH	(µg / L)	Aesthetic	≤ 10	8	95.0%	100%	3.00	0.00	3.00
Chloroform - $CHCl_3$	(µg / L)	Chronic health	≤ 300	13	97.0%	100%	42.15	3.44	52.46
Bromoform - $CHBr_3$	(µg / L)	Chronic health	≤ 100	13	97.0%	100%	10.00	0.00	10.00
Dibromochloromethane - $CHBr_2Cl$	(µg / L)	Chronic health	≤ 100	13	97.0%	100%	10.00	0.00	10.00
Bromodichloromethane - $CHBrCl_2$	(µg / L)	Chronic health	≤ 60	13	97.0%	100%	15.54	1.05	18.69
Combined trihalomethanes (5)	(µg / L)	Chronic health	≤ 1	13	97.0%	100%	0.44	0.03	0.53
Total Microcystin (2)	(µg / L)	Chronic health	≤ 1	no data	97.0%	no data	.	no data	.
For monitoring/reporting purposes only									
Calcium (6)	(mg / L as Ca)	Aesthetic	≤ 150	14	not applicable	100%	16.07	5.03	31.16
Hardness (7)	(mg / L as $CaCO_3$)	Operational	≥ 20 to ≤ 200	14	not applicable	100%	61.79	14.27	104.61
Magnesium (6)	(mg / L as Mg)	Aesthetic	≤ 70	14	not applicable	100%	5.19	0.57	6.91
Potassium (6)	(mg / L as K)	Aesthetic	≤ 50	14	not applicable	100%	2.94	1.89	8.61
Rand Water Risk Determinands (RWRD) (6)									
Odour	TON	RWRD	≤ 2	25	not applicable	100%	1.00	0.00	1.00
Taste	FTN	RWRD	≤ 2	25	not applicable	100%	1.00	0.00	1.00

Risks	Required compliances to SANS 241: 2015 standard	Overall Compliances - SANS 241: 2015 standard
Acute health microbiological	99.0%	100%
Acute health chemical	99.0%	100%
Chronic health	97.0%	100%
Aesthetic	95.0%	100%
Operational	95.0%	100%

Notes
(1) Specification_SANS 241 date of effect : 1 July 2016
(2) Measured at water treatment works exit points
(3) (NO2/0.9 + NO3/11)
(4) Residual disinfectant : Results from the chloraminated system = Sum of Free and Monochloramine
(5) (CHCl3/300 + CHBr3/100 + CHBr2Cl/100 + CHBrCl2/60)
(6) Customer request: Results not included in the risk indices compliance calculations and limits based on SANS 241:2006
(7) Customer request: Results not included in the risk indices compliance calculations and limits based on RW Internal Spec
**** Determinands with no data are due to instrument breakdown****