

**Customer Bulk 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	15 384	99.9%	0	2.30	7
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	15 384	99.6%	0	7.62	23
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	15 384	99.6%	20	412.29	1257
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	215	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	215	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	1 144	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	1 413	99.9%	5.42	1.32	9.39
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	12 448	100.0%	21.70	7.72	44.85
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	1 600	100.0%	159.85	68.92	366.61
Turbidity	(NTU)	Operational	95.0%	≤1	12 965	99.7%	0.32	0.21	0.96
Turbidity	(NTU)	Aesthetic	95.0%	≤5	12 965	99.9%	0.32	0.21	0.96
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	12 448	100.0%	7.98	0.15	8.42
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	12 234	100.0%	0.22	0.17	0.73
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	1 452	100.0%	18.18	25.71	95.30
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	15 381	100.0%	0.38	0.51	1.92
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	11 122	100.0%	1.31	0.58	3.04
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	1 453	100.0%	0.20	0.04	0.31
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	12 375	100.0%	0.47	0.05	0.61
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	12 390	100.0%	0.05	0.06	0.21
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	12 276	100.0%	0.09	0.06	0.29
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine; ≥0.1 Sum of Free and Monochloramine	15 381	97.4%	1.32	0.56	3.00
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	1 487	100.0%	13.39	14.56	57.05
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	1 452	100.0%	21.19	23.09	90.45
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	1 452	100.0%	21.19	23.09	90.45
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	1 487	100.0%	0.08	0.23	0.77
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	1 487	100.0%	32.51	13.61	73.35
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	1 528	100.0%	0.55	0.24	1.25
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	1 356	100.0%	2.08	2.48	9.52
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	1 487	100.0%	44.67	10.69	76.75
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	1 487	100.0%	20.38	18.86	76.95
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	1 359	100.0%	1.96	0.68	3.98
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	1 486	100.0%	10.95	4.91	25.68
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	1 487	100.0%	10.83	9.38	38.97
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	1 401	100.0%	15.04	7.03	36.13
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	1 486	100.0%	17.34	20.51	78.86
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	1 486	99.9%	17.34	20.51	78.86
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	1 372	100.0%	1.83	2.49	9.31
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	1 486	100.0%	9.32	10.28	40.17
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	1 486	99.9%	9.32	10.28	40.17
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	1 525	100.0%	0.78	0.14	1.19
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	1 487	100.0%	7.98	2.46	15.34
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	1 357	100.0%	2.81	2.52	10.39
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	1 517	100.0%	0.38	0.35	1.42
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	1 359	100.0%	3.90	0.65	5.84
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	1 274	100.0%	4.18	0.98	7.13
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	1 542	100.0%	34.82	11.37	68.93
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	1 542	100.0%	4.42	4.65	18.36
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	1 542	100.0%	5.59	4.36	18.66
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	1 542	100.0%	13.62	3.13	23.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	1 542	99.9%	0.44	0.12	0.81
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	262	100.0%	0.31	0.00	0.31
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	1487	100.0%	18.88	5.13	34.26653396
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	1 487	99.1%	74.76	28.10	159.06
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	1 485	100.0%	7.97	4.63	21.84
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	1 487	100.0%	3.83	1.53	8.42
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	4 153	100.0%	1.00	0.02	1.05
Taste	FTN	RWRD	95.0%	≤2	4 153	100.0%	1.00	0.01	1.04

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.92%
Acute health chemical	99.00%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.97%
Operational	95.00%	99.24%

- 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) (NO<sub>2</sub>/0.9 + NO<sub>3</sub>/11)
  - (8) (CHCl<sub>3</sub>/300 + CHBr<sub>3</sub>/100 + CHBr<sub>2</sub>Cl/100 + CHBrCl<sub>2</sub>/60)