

**Customer Bulk Water Quality Report - 12 Month**

23 January 2017 to 22 January 2018

Date generated: 01 February 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
<b>Microbiological determinands</b>									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	15 489	100.0%	0	0.12	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	15 489	99.9%	0	4.16	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	15 418	99.7%	17	838.98	98
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	202	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	202	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	976	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	1 354	99.9%	5.11	1.38	7.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	12 295	100.0%	19.49	5.08	51.06
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	1 513	100.0%	143.85	44.63	385.00
Turbidity	(NTU)	Operational	95.0%	≤1	12 797	99.6%	0.30	0.34	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	12 797	99.9%	0.30	0.34	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	12 286	100.0%	7.90	0.17	8.37
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	12 147	100.0%	0.23	0.16	0.52
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	1 374	100.0%	13.69	12.77	76.27
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	15 496	100.0%	0.40	0.53	1.98
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	10 950	100.0%	1.28	0.60	2.14
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	1 370	100.0%	0.19	0.05	0.40
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	12 198	100.0%	0.52	0.12	0.93
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	12 237	100.0%	0.06	0.09	0.46
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	12 197	100.0%	0.11	0.10	0.57
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine; ≥0.1 Sum of Free and Monochloramine	15 496	97.4%	1.31	0.56	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	1 375	100.0%	10.36	8.77	55.00
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	1 404	100.0%	16.69	14.31	85.97
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	1 404	100.0%	16.69	14.31	85.97
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	1 375	100.0%	0.02	0.01	0.08
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	1 375	99.9%	31.49	16.43	88.26
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	1 148	100.0%	0.51	0.16	0.78
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	1 273	100.0%	0.92	0.86	5.10
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	1 368	100.0%	34.30	11.49	85.33
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	1 375	100.0%	26.85	11.39	52.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	1 273	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	1 375	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	1 375	100.0%	11.44	8.98	32.26
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	1 292	100.0%	5.29	2.18	12.09
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	1 375	100.0%	22.52	25.02	131.30
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	1 375	99.9%	22.52	25.02	131.30
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	1 272	100.0%	0.31	0.53	2.96
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	1 375	100.0%	11.23	10.18	42.26
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	1 375	99.7%	11.23	10.18	42.26
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	1 170	100.0%	0.80	0.02	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	1 375	100.0%	10.01	0.12	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	1 273	100.0%	0.95	1.09	6.26
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	1 147	100.0%	0.24	0.35	0.97
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	1 270	100.0%	3.77	0.71	6.23
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	1 219	100.0%	5.00	0.00	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	1 444	100.0%	43.52	13.71	79.71
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	1 439	100.0%	0.54	0.34	2.59
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	1 439	100.0%	1.59	1.96	12.62
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	1 439	100.0%	13.00	2.76	20.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	1 439	100.0%	0.38	0.09	0.61
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	250	100.0%	0.33	0.02	0.36
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	1375	100.0%	18.40	5.50	40
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	1 371	99.9%	68.16	24.19	176.50
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	1 375	100.0%	6.39	3.28	22.26
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	1 373	100.0%	3.72	0.88	7.53
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	4 085	100.0%	1.00	0.01	1.00
Taste	FTN	RWRD	95.0%	≤2	4 086	100.0%	1.00	0.01	1.00

Risk	Required compliance to SANS 241: 2015 standard	Overall Compliance-SANS 241
Acute health microbiological	99.00%	99.97%
Acute health chemical	99.00%	99.97%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	99.97%
Operational	95.00%	99.31%

- 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)