

Madibeng Municipality Water Quality Report - 12 Month

23 May 2017 to 22 May 2018 Date generated: 01 June 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	360	99.2%	1	14.96	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	360	98.9%	1	15.16	12
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	360	100.0%	3	10.30	60
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	809	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	23	100.0%	5.00	0.00	5.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	360	100.0%	19.26	1.76	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	23	100.0%	138.26	7.17	150.00
Turbidity	(NTU)	Operational	95.0%	≤1	357	99.7%	0.31	0.14	0.49
Turbidity	(NTU)	Aesthetic	95.0%	≤5	357	100.0%	0.31	0.14	0.49
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	360	100.0%	7.86	0.12	8.14
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	360	100.0%	0.24	0.12	0.45
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	27	100.0%	10.77	1.17	12.74
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	357	100.0%	0.14	0.23	1.30
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	357	100.0%	0.87	0.38	1.59
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	27	100.0%	0.20	0.05	0.40
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	357	100.0%	0.46	0.05	0.64
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	360	99.7%	0.09	0.11	0.49
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	357	99.7%	0.14	0.13	0.59
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	357	99.7%	1.00	0.36	1.68
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	23	100.0%	8.33	1.45	12.32
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	27	100.0%	13.56	1.28	16.74
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	27	100.0%	13.56	1.28	16.74
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	23	100.0%	0.02	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	23	100.0%	28.43	10.52	65.52
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	23	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	23	100.0%	0.72	0.87	3.36
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	23	100.0%	32.22	8.21	53.14
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	23	100.0%	25.00	0.00	25.00
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	23	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	23	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	23	100.0%	14.39	10.19	42.68
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	23	100.0%	5.08	0.27	6.07
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	23	100.0%	16.67	9.14	31.00
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	23	100.0%	16.67	9.14	31.00
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	23	100.0%	0.22	0.08	0.49
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	23	100.0%	10.00	0.00	10.00
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	23	100.0%	10.00	0.00	10.00
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	23	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	23	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	23	100.0%	0.97	1.12	4.20
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	23	100.0%	0.20	0.01	0.25
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	23	100.0%	3.99	0.89	7.11
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	23	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	27	100.0%	40.96	8.54	62.44
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	27	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	27	100.0%	1.22	0.69	2.40
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	27	100.0%	12.77	2.70	18.22
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	27	100.0%	0.37	0.07	0.53
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	186	100.0%	0.32	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	23	100.0%	16.74	2.72	23.12
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	23	100.0%	61.83	10.83	87.70
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	23	100.0%	5.80	1.26	8.77
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	23	100.0%	3.65	0.32	4.28
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	141	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	141	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%	99.59%
Acute health chemical	99.00%	99.82%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.77%

- 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)