

Madibeng Municipality 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
Microbiological determinands									
<i>E. coli</i>	(mpn per 100 mL)	Acute health	99.0%	0	364	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	364	100.0%	0	0.05	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	364	100.0%	4	11.16	50
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	179	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	775	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	23	100.0%	5.09	0.29	6.00
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	363	100.0%	18.90	1.42	22.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	23	100.0%	136.74	8.06	157.80
Turbidity	(NTU)	Operational	95.0%	≤1	362	99.7%	0.30	0.14	0.49
Turbidity	(NTU)	Aesthetic	95.0%	≤5	362	100.0%	0.30	0.14	0.49
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	363	100.0%	7.88	0.13	8.14
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	363	100.0%	0.24	0.12	0.45
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	25	100.0%	10.49	1.16	12.76
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	361	100.0%	0.15	0.24	1.30
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	361	100.0%	0.88	0.39	1.59
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	25	100.0%	0.19	0.06	0.40
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	359	100.0%	0.54	0.13	0.85
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	363	99.7%	0.09	0.13	0.62
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	359	99.7%	0.15	0.14	0.74
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	361	99.7%	1.03	0.36	1.68
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	23	100.0%	7.65	0.50	8.56
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	25	100.0%	13.08	1.32	16.76
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	25	100.0%	13.08	1.32	16.76
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%	26.91	4.70	39.00
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	19	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	23	100.0%	0.78	0.55	1.78
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	23	100.0%	28.61	3.75	35.00
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%	14.22	10.14	42.68
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	22	100.0%	5.03	0.13	5.47
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	23	100.0%	17.33	9.48	34.12
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	23	100.0%	17.33	9.48	34.12
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	23	100.0%	0.21	0.02	0.26
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	19	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%	0.99	1.05	4.20
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	19	100.0%	0.20	0.00	0.20
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	23	100.0%	4.21	1.30	7.88
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%	41.78	7.95	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%	1.06	0.56	2.42
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	27	100.0%	12.04	2.54	18.22
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	27	100.0%	0.36	0.07	0.53
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	179	100.0%	0.33	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	23	100.0%	16.39	2.13	20.56
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	23	100.0%	58.96	6.83	71.12
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	23	100.0%	5.21	0.54	5.90
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	23	100.0%	3.47	0.33	4.08
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	143	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	143	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%	99.82%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.92%

- 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)