

**Metsimaholo Municipality Water Quality Report - 12 Month**

23 October 2017 to 22 October 2018

Date generated: 05 November 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	251	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	251	100.0%	0	0.50	2
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	251	100.0%	1	3.18	10
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	189	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	817	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	20	100.0%	5.20	0.70	7.29
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	251	100.0%	20.06	1.98	25.99
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	20	100.0%	146.50	13.77	187.82
Turbidity	(NTU)	Operational	95.0%	≤1	250	99.6%	0.32	0.19	0.88
Turbidity	(NTU)	Aesthetic	95.0%	≤5	250	100.0%	0.32	0.19	0.88
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	251	100.0%	7.95	0.16	8.44
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	248	100.0%	0.05	0.01	0.08
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	20	100.0%	12.48	1.32	16.44
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	248	100.0%	1.12	0.42	2.38
Monochloramine (3)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤4.1	not applicable	not applicable	not applicable	not applicable	not applicable
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	18	100.0%	0.21	0.04	0.32
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	251	100.0%	0.45	0.02	0.51
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	251	100.0%	0.03	0.02	0.10
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	251	100.0%	0.07	0.02	0.14
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	248	99.2%	1.12	0.42	2.38
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	20	100.0%	10.59	1.61	15.43
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	18	100.0%	15.17	1.76	20.44
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	18	100.0%	15.17	1.76	20.44
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	20	100.0%	0.07	0.22	0.73
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	20	100.0%	28.30	6.13	46.69
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	18	100.0%	0.52	0.06	0.69
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	20	100.0%	2.06	2.88	10.71
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	20	100.0%	40.35	9.16	67.82
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	20	100.0%	21.07	8.09	45.34
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	20	100.0%	2.28	0.47	3.69
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	20	100.0%	13.00	4.10	25.31
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	20	100.0%	9.75	1.12	13.10
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	20	100.0%	11.75	7.66	34.72
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	20	100.0%	21.18	12.64	59.12
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	20	100.0%	21.18	12.64	59.12
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	20	100.0%	1.59	2.80	9.99
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	20	100.0%	8.60	2.87	17.22
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	20	100.0%	8.60	2.87	17.22
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	18	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	20	100.0%	9.00	2.05	15.16
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	20	100.0%	2.23	2.81	10.66
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	18	100.0%	0.30	0.13	0.68
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	20	100.0%	3.73	0.40	4.93
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	20	100.0%	4.60	0.82	7.06
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	31	100.0%	41.52	19.34	99.54
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	31	100.0%	2.34	3.82	13.78
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	31	100.0%	3.25	3.45	13.59
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	31	100.0%	13.70	3.76	24.98
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	31	100.0%	0.42	0.14	0.86
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	193	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	20	100.0%	17.95	3.07	27.15683385
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	20	100.0%	68.70	12.65	106.65
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	20	100.0%	6.87	1.54	11.48
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	20	100.0%	3.62	0.23	4.30
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	48	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	48	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%	100.00%
Chronic health	97.00%	100.00%
Aesthetic	95.00%	100.00%
Operational	95.00%	99.86%

**Notes:**

- (1) Specification date of effect : 1 July 2016
- (2) Free chlorine : Results from chlorinated system
- (3) Monochloramine : Chlorinated system has no monochloramine
- (4) Residual disinfectant : Results from chlorinated system
- (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)