

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

24 October 2016 to 23 October 2017

Date generated: 02 November 2017

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	626	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	626	100.0%	0	0.06	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	583	100.0%	1	3.63	7
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	181	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	784	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	67	100.0%	5.06	0.30	6.34
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	310	100.0%	18.46	2.29	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	310	100.0%	131.26	13.34	157.70
Turbidity	(NTU)	Operational	95.0%	≤1	308	100.0%	0.28	0.11	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	308	100.0%	0.28	0.11	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	310	100.0%	8.03	0.20	8.49
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	314	100.0%	0.06	0.05	0.36
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	32	100.0%	10.08	1.53	14.69
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	626	100.0%	1.40	0.45	2.20
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	32	100.0%	0.18	0.06	0.41
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	309	100.0%	0.48	0.11	0.76
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	314	100.0%	0.03	0.01	0.09
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	308	100.0%	0.08	0.02	0.14
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	626	99.5%	1.40	0.45	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	71	100.0%	7.75	1.02	9.63
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	59	100.0%	13.04	1.42	16.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	59	100.0%	13.04	1.42	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	71	100.0%	0.02	0.01	0.04
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	71	100.0%	27.41	7.28	60.00
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	30	100.0%	0.55	0.24	1.49
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	30	100.0%	0.67	0.46	1.54
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	71	100.0%	27.06	6.75	44.30
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	71	100.0%	25.01	0.12	25.30
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	30	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	71	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	71	100.0%	10.00	0.00	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	67	100.0%	5.07	0.41	7.34
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	71	100.0%	23.46	23.87	123.00
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	71	100.0%	23.46	23.87	123.00
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	30	100.0%	0.25	0.14	0.77
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	71	100.0%	10.08	0.53	12.60
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	71	100.0%	10.08	0.53	12.60
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	30	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	71	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	30	100.0%	0.84	0.83	3.91
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	30	100.0%	0.20	0.00	0.20
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	30	100.0%	3.44	0.90	4.91
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	30	100.0%	5.00	0.00	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	42	100.0%	33.53	22.41	82.26
Bromoform - CHBr <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤100	41	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr <sub>2</sub> Cl	(µg / L)	Chronic health	97.0%	≤100	41	100.0%	1.28	1.16	4.70
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	41	100.0%	9.86	4.70	19.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	41	100.0%	0.29	0.16	0.61
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	181	100.0%	0.35	0.02	0.36
<b>For monitoring/reporting purposes only (6)</b>									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	71	100.0%	17.85	3.70	28.2
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	71	100.0%	62.25	9.68	87.46
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	71	100.0%	5.10	0.70	6.16
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	71	100.0%	3.07	0.79	4.19
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	49	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	49	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%	99.91%

**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)