

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

October 2016 to September 2017 Date generated: 03 October 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>									
E. coli	(mpn per 100 mL)	Acute health	99.0%	0	605	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	605	100.0%	0	0.06	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	604	100.0%	1	3.58	7
Cryptosporidium spp (5)	(org / 10 Litre)	Acute health	99.0%	0	183	100.0%	0	0.00	0
Giardia spp (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	775	100.0%	0	0.00	0
<b>Physical and Aesthetic determinands</b>									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	66	100.0%	5.06	0.30	6.35
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	297	100.0%	18.22	2.29	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	297	100.0%	129.85	13.33	157.70
Turbidity	(NTU)	Operational	95.0%	≤1	296	100.0%	0.28	0.11	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	296	100.0%	0.28	0.11	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	297	100.0%	8.04	0.20	8.49
<b>Chemical Properties</b>									
<b>Macro determinands</b>									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	300	100.0%	0.06	0.05	0.36
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	32	100.0%	9.90	1.56	14.69
Free chlorine (2)	(mg / L as Cl <sub>2</sub> )	Chronic health	97.0%	≤5	605	100.0%	1.41	0.44	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	295	100.0%	0.47	0.13	0.77
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	300	100.0%	0.03	0.01	0.09
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	295	100.0%	0.08	0.02	0.14
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	605	99.5%	1.41	0.44	2.20
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	69	100.0%	7.62	1.07	9.63
Sulphate	(mg / L as SO <sub>4</sub> )	Aesthetic	95.0%	≤250	55	100.0%	12.75	1.65	16.00
Sulphate	(mg / L as SO <sub>4</sub> )	Acute health	99.0%	≤500	55	100.0%	12.75	1.65	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	69	100.0%	0.02	0.01	0.04
<b>Micro determinands</b>									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	69	100.0%	27.39	7.39	60.20
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%	0.62	0.45	1.54
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	69	100.0%	27.39	6.41	44.52
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	69	100.0%	25.01	0.12	25.32
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	69	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	69	100.0%	10.01	0.12	10.32
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	66	100.0%	5.07	0.42	7.34
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	69	100.0%	24.34	23.89	123.20
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	69	100.0%	24.34	23.89	123.20
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	30	100.0%	0.26	0.15	0.77
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	69	100.0%	10.12	0.58	12.64
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	69	100.0%	10.12	0.58	12.64
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	69	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	30	100.0%	0.88	0.82	3.91
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	30	100.0%	0.23	0.08	0.53
<b>Organic determinands</b>									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	30	100.0%	3.23	0.94	4.91
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(µg / L)	Aesthetic	95.0%	≤10	30	100.0%	4.75	0.82	5.00
Chloroform - CHCl <sub>3</sub>	(µg / L)	Chronic health	97.0%	≤300	42	100.0%	31.00	22.11	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%	1.41	1.20	4.70
Bromodichloromethane - CHBrCl <sub>2</sub>	(µg / L)	Chronic health	97.0%	≤60	41	100.0%	9.42	4.66	19.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	41	100.0%	0.28	0.15	0.61
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	183	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	69	100.0%	17.74	3.76	28.28
Hardness	(mg / L as CaCO <sub>3</sub> )	Operational	not applicable	≥ 20 to ≤ 200	69	100.0%	61.99	9.67	87.71
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	69	100.0%	5.10	0.68	6.16
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	69	100.0%	2.90	0.86	4.03
<b>Rand Water Risk Determinands (RWRD)</b>									
Odour	TON	RWRD	95.0%	≤2	47	100.0%	1.00	0.00	1.00
Taste	FTN	RWRD	95.0%	≤2	47	100.0%	1.00	0.00	1.00

Water quality risk indices		
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)