

Emfuleni 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	1 123	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	1 123	100.0%	0	0.38	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	1 120	99.8%	112	3077.16	79
<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	65	100.0%	5.09	0.34	6.36
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	807	100.0%	18.81	1.89	23.00
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	65	100.0%	133.62	9.66	160.00
Turbidity	(NTU)	Operational	95.0%	≤1	805	99.8%	0.29	0.14	0.48
Turbidity	(NTU)	Aesthetic	95.0%	≤5	805	100.0%	0.29	0.14	0.48
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	807	100.0%	7.95	0.18	8.46
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	811	100.0%	0.05	0.01	0.09
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	29	100.0%	10.18	1.20	13.44
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	1 123	100.0%	1.28	0.45	2.18
Monochloramine (3)	(mg / L as Cl ₂)	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	29	100.0%	0.19	0.05	0.38
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	811	100.0%	0.48	0.08	0.71
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	811	100.0%	0.03	0.03	0.19
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	810	100.0%	0.08	0.03	0.26
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.2 Free Chlorine	1 123	97.9%	1.28	0.45	2.18
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	69	100.0%	8.06	0.64	9.50
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	66	100.0%	13.32	1.01	16.00
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	66	100.0%	13.32	1.01	16.00
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	69	100.0%	0.02	0.00	0.02
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	69	100.0%	28.61	8.00	60.20
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	25	100.0%	0.51	0.04	0.67
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	28	100.0%	0.76	0.57	2.09
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	69	100.0%	28.35	6.52	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	28	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%	10.00	0.00	10.00
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	64	100.0%	5.05	0.34	6.53
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	69	100.0%	24.11	19.99	96.88
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	69	100.0%	24.11	19.99	96.88
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	28	100.0%	0.22	0.07	0.49
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	69	100.0%	10.09	0.54	12.64
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	69	100.0%	10.09	0.54	12.64
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	26	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	28	100.0%	0.73	0.79	3.74
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	25	100.0%	0.27	0.34	1.51
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	28	100.0%	3.71	0.79	6.37
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	28	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	102	100.0%	29.50	14.90	67.96
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	102	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	102	100.0%	0.91	0.53	2.20
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	102	100.0%	9.80	2.96	17.98
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	102	100.0%	0.28	0.10	0.52
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	69	100.0%	17.96	3.86	28.96
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	69	100.0%	63.22	9.89	90.56
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	69	100.0%	5.30	0.67	6.43
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	69	100.0%	3.54	0.47	4.33
Rand Water Risk Determinands (RWRD)									
Odour	TON	RWRD	95.0%	≤2	no data	no data	no data	no data	no data
Taste	FTN	RWRD	95.0%	≤2	no data	no data	no data	no data	no data

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%	99.52%

- 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) (NO₂/0.9 + NO₃/11)
 - (8) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)