

Thembeile Municipality Water Quality Report - 12 Month

23 March 2017 to 22 March 2018 Date generated: 03 April 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	156	100.0%	0	0.00	0
Total Coliforms	(mpn per 100 mL)	Operational	95.0%	10	156	100.0%	0	0.08	0
Heterotrophic Plate Count	(cfu per 1 mL)	Operational	95.0%	≤1000	156	100.0%	0	1.39	7
<i>Cryptosporidium spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
<i>Giardia spp</i> (5)	(org / 10 Litre)	Acute health	99.0%	0	182	100.0%	0	0.00	0
Somatic Coliphages (5)	(count per 10 mL)	Operational	95.0%	0	890	100.0%	0	0.00	0
Physical and Aesthetic determinands									
Colour	(mg / L as Pt-Co)	Aesthetic	95.0%	≤15	12	100.0%	5.08	0.29	5.89
Conductivity	(mS / m)	Aesthetic	95.0%	≤170	156	100.0%	19.39	2.41	23.90
Total Dissolved Solids	(mg / L)	Aesthetic	95.0%	≤1200	12	100.0%	136.25	7.72	149.45
Turbidity	(NTU)	Operational	95.0%	≤1	156	100.0%	0.30	0.09	0.47
Turbidity	(NTU)	Aesthetic	95.0%	≤5	156	100.0%	0.30	0.09	0.47
pH	(pH units)	Operational	95.0%	≥ 5 to ≤ 9.7	156	100.0%	7.86	0.13	8.12
Chemical Properties									
Macro determinands									
Ammonia	(mg / L as N)	Aesthetic	95.0%	≤1.5	156	100.0%	0.23	0.10	0.40
Chloride	(mg / L as Cl)	Aesthetic	95.0%	≤300	12	100.0%	10.41	1.25	12.89
Free chlorine (2)	(mg / L as Cl ₂)	Chronic health	97.0%	≤5	156	100.0%	0.09	0.13	0.86
Monochloramine (3)	(mg / L as Cl ₂)	Chronic health	97.0%	≤4.1	156	100.0%	0.94	0.32	1.52
Fluoride	(mg / L as F)	Chronic health	97.0%	≤1.5	12	100.0%	0.19	0.01	0.21
Nitrate	(mg / L as N)	Acute health	99.0%	≤11	156	100.0%	0.49	0.09	0.84
Nitrite	(mg / L as N)	Acute health	99.0%	≤0.9	156	100.0%	0.12	0.11	0.54
Combined nitrate plus nitrite (7)	(mg / L as N)	Acute health	99.0%	≤1	156	100.0%	0.17	0.12	0.64
Residual disinfectant (4)	(mg / L)	Operational	95.0%	≥0.1 Sum of Free and Monochloramine	156	100.0%	1.03	0.30	1.56
Sodium	(mg / L as Na)	Aesthetic	95.0%	≤200	17	100.0%	8.41	0.71	9.68
Sulphate	(mg / L as SO ₄)	Aesthetic	95.0%	≤250	12	100.0%	13.25	0.97	14.89
Sulphate	(mg / L as SO ₄)	Acute health	99.0%	≤500	12	100.0%	13.25	0.97	14.89
Zinc	(mg / L as Zn)	Aesthetic	95.0%	≤5	17	100.0%	0.02	0.00	0.03
Micro determinands									
Aluminium	(µg / L as Al)	Operational	95.0%	≤300	17	100.0%	36.47	10.47	58.04
Antimony	(µg / L as Sb)	Chronic health	97.0%	≤20	12	100.0%	0.50	0.00	0.50
Arsenic	(µg / L as As)	Chronic health	97.0%	≤10	12	100.0%	1.04	0.66	2.30
Barium	(µg / L as Ba)	Chronic health	97.0%	≤700	16	100.0%	34.69	5.29	44.00
Boron	(µg / L as B)	Chronic health	97.0%	≤2400	17	100.0%	31.41	25.42	113.84
Cadmium	(µg / L as Cd)	Chronic health	97.0%	≤3	12	100.0%	2.50	0.00	2.50
Chromium (Total)	(µg / L as Cr)	Chronic health	97.0%	≤50	17	100.0%	15.00	0.00	15.00
Copper	(µg / L as Cu)	Chronic health	97.0%	≤2000	17	100.0%	15.59	23.04	89.80
Cyanide (Recoverable)	(µg / L as CN)	Acute health	99.0%	≤200	12	100.0%	5.13	0.46	6.42
Iron	(µg / L as Fe)	Chronic health	97.0%	≤2000	17	100.0%	12.70	11.66	47.88
Iron	(µg / L as Fe)	Aesthetic	95.0%	≤300	17	100.0%	12.70	11.66	47.88
Lead	(µg / L as Pb)	Chronic health	97.0%	≤10	12	100.0%	0.22	0.04	0.31
Manganese	(µg / L as Mn)	Chronic health	97.0%	≤400	17	100.0%	10.29	1.21	14.20
Manganese	(µg / L as Mn)	Aesthetic	95.0%	≤100	17	100.0%	10.29	1.21	14.20
Mercury	(µg / L as Hg)	Chronic health	97.0%	≤6	12	100.0%	0.80	0.00	0.80
Nickel	(µg / L as Ni)	Chronic health	97.0%	≤70	17	100.0%	10.00	0.00	10.00
Selenium	(µg / L as Se)	Chronic health	97.0%	≤40	12	100.0%	0.69	0.36	1.62
Uranium	(µg / L as U)	Chronic health	97.0%	≤30	12	100.0%	0.26	0.19	0.79
Organic determinands									
Total Organic Carbon	(mg / L)	Chronic health	97.0%	≤10	12	100.0%	3.91	0.65	5.27
Phenols as C ₆ H ₅ OH	(µg / L)	Aesthetic	95.0%	≤10	12	100.0%	5.00	0.00	5.00
Chloroform - CHCl ₃	(µg / L)	Chronic health	97.0%	≤300	12	100.0%	47.83	6.59	60.34
Bromoform - CHBr ₃	(µg / L)	Chronic health	97.0%	≤100	12	100.0%	0.50	0.00	0.50
Dibromochloromethane - CHBr ₂ Cl	(µg / L)	Chronic health	97.0%	≤100	12	100.0%	1.17	0.58	2.16
Bromodichloromethane - CHBrCl ₂	(µg / L)	Chronic health	97.0%	≤60	12	100.0%	13.92	1.24	16.00
Combined trihalomethanes (8)	(µg / L)	Chronic health	97.0%	≤1	12	100.0%	0.41	0.04	0.47
Total Microcystin (5)	(µg / L)	Chronic health	97.0%	≤1	184	100.0%	0.32	0.02	0.36
For monitoring/reporting purposes only (6)									
Calcium	(mg / L as Ca)	Aesthetic	not applicable	≤150	17	100.0%	17.94	3.19	22.84
Hardness	(mg / L as CaCO ₃)	Operational	not applicable	≥ 20 to ≤ 200	17	100.0%	65.82	9.28	77.68
Magnesium	(mg / L as Mg)	Aesthetic	not applicable	≤70	17	100.0%	6.06	0.63	7.30
Potassium	(mg / L as K)	Aesthetic	not applicable	≤50	17	100.0%	3.84	0.37	4.38
Rand Water Risk Determinands (RWRD)									
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%	100.00%

- 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)