

On-site Effluent Treatment National Testing Programme (OSET NTP)

PERFORMANCE CERTIFICATE Biolytix BioPod On-site Domestic Wastewater Treatment System, OSET NTP Trial 9, 2013/2014

System Tested

The **Biolytix BioPod system** is an aerated biological trickling filter with a vermicomposting wastewater treatment unit using tiger worms within 3 layers of aerated drainage and humus matrix elements. Effluent gravitates through the matrix elements and discharges into the pump well below.

The manufacturer's rated design capacity is 1,600 litres/day. Total liquid volume is 1,351 litres within a 3,000 litre tank: (aerobic treatment 893 litres; pump chamber 458 litres). Emergency storage is 1,649 litres. No tertiary treatment (such as UV disinfection) is incorporated. The manufacturer's stated service requirement is annual.

Test Flow Rate

The **Biolytix BioPod system** was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 to 6 person household) over an 8 month (35 week) period November 2013 to July 2014 followed by a 1 month (4 week) high load effects test involving 5 days at 2,000 litres per day then 1,000 litres/day over the following 3 weeks.

Testing and Evaluation Procedures

A total of 37 treated effluent samples of organic matter (BOD₅) and suspended solids (TSS) at generally six day intervals during weeks 9 to 35 were tested and evaluated against the secondary effluent quality requirements of the joint Australia/NZ standard AS/NZS 1547:2012.

A total of 16 treated effluent samples of organic matter (BOD₅), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH₄-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals during weeks 23 through 35 were tested and the results benchmarked and rated on their median values. In addition, the energy used by the treatment system was assessed on the mean of consumption levels over the benchmark period.

AS/NZS 1547:2012 Secondary Effluent Quality Requirements

These requirements are that 90% of all test samples must achieve a BOD₅ of ≤ 20 g/m³ and TSS of ≤ 30 g/m³ with no one result for BOD₅ being >30 g/m³ and no one result for TSS being >45 g/m³. The **Biolytix BioPod system achieved** a performance level of **100%** for BOD₅ and **100%** for TSS based on the full set of 37 test results in weeks 9 to 35, with no results exceeding the maximums. The **Biolytix BioPod system** thus **meets** the secondary effluent quality requirements of AS/NZS 1547:2012.

Benchmark Ratings

The **Biolytix BioPod system achieved** the following effluent quality ratings for the sixteen benchmarking results in weeks 20 to 35.

Indicator Parameters	Median	Std Dev	Rating	Rating System				
				A+	A	B	C	D
BOD (mg/L)	5.5	2.6	A	<5	<10	<20	<30	≥30
TSS (mg/L)	10	2.5	B	<5	<10	<20	<30	≥30
Total Nitrogen (mg/L)	37.8	4.2	D	<5	<15	<25	<30	≥30
NH ₄ - Nitrogen (mg/L)	13.8	3.7	C	<1	<5	<10	<20	≥20
Total phosphorus (mg/L)	4.3	0.6	B	<1	<2	<5	<7	≥7
Faecal Coliforms (cfu/100mL)	1,200,000	895,000	D	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	0.4	0.04	A	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **Biolytix BioPod** model as specified above when operated at a flow rate of 1,000 litres/day, and is valid for 5 years from the date below. For the full OSET NTP report on the performance of the **Airtech 9000 system** contact **Biolytix Ltd**, Penrose, Auckland, Ph: +64 9 579 1080 or 0800 700 818, Email: karl@biolytix.com.

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