



EXECUTIVE SUMMARY

Testing of the Bio-Microbics, Inc. (formerly Scienco/FAST®) Single Home FAST Treatment Plant Model 23-001-750 was conducted under the provisions of NSF Standard 40 for Individual Aerobic Wastewater Treatment Plants (July 1990). NSF Standard 40 was developed by the NSF Joint Committee on Wastewater Technology.

The performance evaluation was conducted at the NSF Wastewater Technology Test Facility in Chelsea, Michigan, using wastewater diverted from the Chelsea municipal wastewater collection system. The evaluation consisted of six months of testing, during which a seven week stress test was conducted. The evaluation consisted of three weeks of dosing without sampling to allow for plant start-up, sixteen weeks of dosing at design flow, seven weeks of stress test and five weeks of dosing at design flow. Sampling started in the fall and continued through the winter and into spring, covering a full range of operating temperatures.

Standard 40, in Section H. (3) of Appendix A, provides for exclusion of up to ten percent of the effluent sample days, not to exceed one during stress testing, in completing the pass/fail determination. No sample days were excluded in this evaluation. Over the course of the evaluation, the average effluent BOD₅ was 9 mg/L, ranging between <5 and 24 mg/L, and the average effluent suspended solids was 7 mg/L, ranging between <5 and 27 mg/L. The pH ranged from 7.5 to 8.2.

The Single Home FAST Treatment Plant Model 23-011-750 produced an effluent that successfully met the performance requirements established by NSF Standard 40 for Class I effluent:

The maximum arithmetic mean of seven consecutive sample days was 14 mg/L for BOD₅ and 12 mg/L for suspended solids, both well below the allowed maximum of 45 mg/L. The maximum arithmetic mean of 30 consecutive sample days was 12 mg/L for BOD₅ and 8 mg/L for suspended solids, both well below the allowed maximum of 30 mg/L. Removal rates ranged from 92 to 95 percent for BOD₅ and 95 to 97 percent for suspended solids, consistently above the requirement of 85 percent.

The effluent pH during the entire evaluation ranged between 7.5 and 8.2, within the required range of 6.0 to 9.0. The plant also met the requirements for noise levels (less than 60 dbA at a distance of 20 feet) and color, threshold odor, oily film and foam.



NITROGEN SERIES TEST RESULTS

(All results reported as mg/L as N)

Plant: Bio-Microbics, Inc. (formerly Scienco/FAST[®]) Model 23-001-0750

Sample Date	Ammonia - N		Nitrate - N		Total Kjeldahl - N	
	Influent	Effluent	Influent	Effluent	Influent	Effluent
9/17	22	3.3	<0.5	0.7	32	6.1
9/20	29	2.2	0.8	4.1	36	4.7
9/24	34	4.0	<0.5	4.6	39	6.2
9/27	25	3.5	<0.5	3.9	33	5.4
10/1	28	4.7	<0.5	1.5	35	8.0
10/4	21	6.0	<0.5	1.4	31	9.4

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