



## Bioaugmentation Reduces Sludge Production 20% Allowing Digester to Handle Increased Load in Hod Hasharon, Israel

**Location:** City of Hod Hasharon, Israel

**Background:** Hod Hasheron's municipal waste treatment system includes anaerobic digesters utilized to reduce sludge volume before disposal. Average daily flow into the plant is approximately 25,000 M<sup>3</sup>/day. The overall performance efficiency of the plant is excellent.

**Objective:** Based on results achieved in the anaerobic digestors at Pusan and Empresas Publicas, the Operations Staff at Hod Hasharon made a decision to determine if similar results could be achieved in their plant. Unlike the other plants, Hod Hasharon was also interested in whether or not an increase in biogas production could be realized since they recovered the gas for use as a fuel source.

**Results Achieved:** After the first three months of treatment with **MICROBE-LIFT®** technology, results were compared to historical values from the previous 15 month operating period. In spite of a 1.8% increase in loading to the plant based on a hydraulic and organic basis, the amount of sludge that was removed from the plant was reduced by 18% with a concurrent increase in biogas of 11.3%.

The following chart shows the actual data developed by the city.

**Table 4:** Operating Data from Hod Hasharon

BIO-GAS	Solids Vs WAS	SOLIDS Tons	% SOLIDS	Dry Sludge	Sewage in m <sup>3</sup>	RAS m <sup>3</sup>	WAS m <sup>3</sup>	
126635	0.42%	139	16.20%	858	796800	255870	32745	1/28/2004
106633	0.45%	129	16.60%	775.5	738833	243050	28593	2/28/2004
115413	0.44%	141	16.10%	874.5	774194	212910	32289	3/28/2004
112470	0.32%	118	15.60%	759	746850	238970	37522	4/28/2004
111817	0.42%	156	14.80%	1056	756214	230610	36870	5/28/2004
119430	0.34%	125	13.50%	924	730080	218740	36847	6/28/2004
159154	0.37%	122	14.20%	858	644940	193520	32969	7/28/2004
131719	0.46%	164	15.50%	1056	695370	212240	35870	8/28/2004
150030	0.38%	136	14.70%	924	677590	213870	35351	9/28/2004
147219	0.41%	153	15.00%	1023	730670	231090	37845	10/28/2004
138930	0.51%	151	15.80%	957	602680	182340	29630	11/28/2004
140585	0.45%	154	16.10%	957	742290	265340	34018	12/28/2004
140864	0.46%	144	15.60%	924	715640	332910	31392	1/28/2005
131488	0.39%	132	16.00%	825	755250	345860	33830	2/28/2005
142383	0.33%	141	15.30%	924	706748	365820	42207	3/28/2005
139350	0.29%	143	18.90%	759	763127	329610	49042	4/28/2005
151032	0.27%	146	19.20%	759	724080	324160	53732	5/28/2005
144330	0.31%	152	20.90%	726	715070	305420	48967	6/28/2005
								7/28/2005
								8/28/2005
								9/28/2005
								10/28/2005

**Fig. 1:** Operating data from Hod Hasharon shows the drop in dry sludge and the increase in biogas.

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This data represents good correlation between the reduction in VSS and the increase in biogas production, making it reasonable to assume that the increase in biogas production is a result of the improved VSS reduction efficiency.

Typically with effective bioaugmentation programs, results may continue to improve as the microorganisms become better established in the population. Current treatment, during the summer of 2006, has obtained even better results in the effluent properties of TSS and BOD with sludge reduction over 20%. The plant has also experienced a significant reduction in odor.

**MICROBE-LIFT®** technology has consistently shown benefit in anaerobic sludge reactors for sludge reduction and odor control

For more information on **MICROBE-LIFT®** Technology contact  
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