Update

To: BioSphere
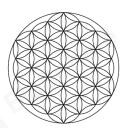
Date: April 17, 2014

From: Thomas Poth

Number of pages including cover: 2

Regarding: Testing under D5511 of Biosphere Pet Fiber Samples (309 Days)
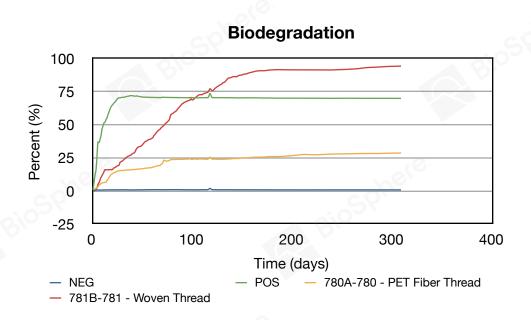
	Inculum	Negative	Positive	780 - PET Fiber Thread	781 - Woven Thread
Cumulative Gas Volume (mL)	1206.2	1508.5	8420.2	7329.7	18245.5
Percent CH_4 (%)	30.9	31.3	36.1	41.8	50.4
Volume CH_4 (mL)	372.9	472.6	3036.6	3064.0	9188.1
Mass CH_4 (g)	0.27	0.34	2.17	2.19	6.56
Percent CO_2 (%)	45.6	41.4	44.2	38.8	37.9
Volume CO_2 (mL)	549.5	624.7	3721.7	2844.2	6910.5
Mass CO_2 (g)	1.08	1.23	7.31	5.59	13.57
Sample Mass (g)	1,000	10	10	15.0	13.9
Theoretical Sample Mass (g)	0.0	8.6	4.4	9.3	8.6
Biodegraded Mass (g)	0.49	0.59	3.62	3.17	8.62
Percent Bio-degraded (%)		1.1	70.7	28.8	94.5

Eden Research Laboratory

Update

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Biodegradation

Legend:
- NEG
- POS
- 780A-780 - PET Fiber Thread
- 781B-781 - Woven Thread

It is unknown if the slope of biodegradation for sample 780 will remain a linear model for the majority of the degradation cycle. Over a 304 day period the treated woven sample indicate over 94% biodegradation. The treated samples have all to have surmounted the let down rate of the bio-additive. The rate of biodegradation of the treated samples is good.

The positive control has achieved the required 70%+ biodegradation. This sample will go through many biological cycles as it biodegrades. It seems the syntrophic effect of the microbes has been fulfilled for the treated sample. It is not uncommon for this to take up to 90+ days before the microbial colonies reach a quorum.

These results are good. In this test, temperature and moisture are optimized and these conditions may not be present in all landfills. In such cases biodegradation would not be as accelerated. To determine an accurate time to total degradation additional testing would be required.