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Chemical Report  
03/25/97

Number: 8158715750  
Mr. Dave McGarva  
Bio-Tech  
994 Blanding Blvd. - Bldg 118  
Orange Park, FL 32065

Description-MicroSolve

Project Overview

This project was constructed to evaluate Micro-Solve™ in it's efficiency towards bioremediating animal grease, vegetable grease and hair in an environment similar to a clogged drain pipe.

The project was set up using one gallon glass jars with a mixture of greases and hair was the contamination. The jars were placed on a paddle stirrer and allowed to stir once per day. Micro-Solve™ was dosed at the manufacturers recommended dosing rate. The test was run in full light.

The samples were allowed to bioremediate for four months. The samples were then sieved with 3/4" and a 1/4" stacked sieves. The grease and hair was weighed then extracted to remove the grease and th residual hair was weighed. The breakdown of the remaining grease and hair was determined.

#### Project Setup and Initiation

A synthetic grease clog was made from hair, vegetable grease and animal grease. The greases were mixed together and cooked at 360 degrees F for two hours to remove any residual bactericides. The greases used were Crisco for the vegetable grease and lard for the animal grease. Two pounds of each grease, 125 grams of the hair was added. This was all mixed well and allowed to cool. Once cool, the mixture was semisolid and could be handled and sampled with ease.

Micro-Solve™ was set up to be analyzed in duplicate. A wide mouth clear glass jar was loaded with 50 grams of the hair grease mixture. To the jar, three liters of dechlorinated water was added. Micro-Solve™ was then dosed according to the instruction on the product. A control was setup also in duplicate with 50 grams of the mixture and three liters of water. All placed on a paddle stirred and were allowed to stir for thirty minutes. The samples were allowed to remediate at room temperature. The room which holds the stirring unit is not heated however, and the temperature of the samples dropped at times down to approximately 45 degrees F.

# RESULTS

The hair and grease residue upon the completion of the test is contained in the following table

<b>ID</b>	<b>HAIR/GREASE RESIDUE (g)</b>
Control A	48.57
Control B	48.62
Micro-Solve™ A	13.98
Micro-Solve™ B	13.84

The averages for the duplicates are in the following table

<b>ID</b>	<b>AVERAGE HAIR/GREASE RESIDUE (g)</b>
Control	48.57
Micro-Solve™	13.98

The percent removal of the hair/grease mixture is as follows

<b>ID</b>	<b>PERCENT REMOVAL OF HAIR/GREASE</b>
Control A	2.86
Control B	2.76
Micro-Solve™ A	72.04
Micro-Solve™ B	72.32

The average percent removal for the duplicates is as follows

<b>ID</b>	<b>AVERAGE PERCENT REMOVAL OF HAIR/GREASE</b>
Control	2.81
Micro-Solve™	72.18

**The following table contains  
the breakdown by sieve size,  
by hair and by grease.**

<b>ID</b>	<b>Residual Grease/Hair (9)</b>	<b>Residual Hair (9)</b>
Control A 3/4"	47.20	3.46
Control A 1/4"	1.37	0.27
Control B 3/4"	46.43	3.59
Control B 1/4"	2.19	0.32
Micro-Solve™ A 3/4"	5.47	1.43
Micro-Solve™ A 1/4"	8.51	2.15
Micro-Solve™ B 3/4"	3.11	1.26
Micro-Solve™ B 1/4"	10.73	2.54

June 12, 1997  
Mr. Dave McGarva  
Biotech Industries  
994 Blanding Blvd, #18  
Orange Park, FL 32065

Dear Dave,

After careful review of the Law & Company report concerning the project to evaluate the efficiency of Micro-Solve™ towards grease and hair, I have a few further insights into the conclusions. Micro-Solve™ definitely appears to reduce levels of grease even at temperatures as low as 45 degrees F. This is an amazing feat since bacterial action decreases as the temperature decreases. One would surmise then that at higher temperatures, around 60-80 degrees F, Micro-Solve™ would promote bacterial destruction of grease at an even faster rate.

The turbidity that was observed in testing is a sign of bacterial activity. The change in color and turbidity, then, is attributed to the greater bacterial action in the Micro-Solve™ tests.

The reduction of grease and hair by an average of 72.18% is very promising. However, if one realizes that the hair did not bioremediate, the reduction calculated from the report results is actually closer to 88.4%. This reduction is the grease removed compared to the original grease added to the system. The hair weights were subtracted out of both the starting material and the final residue weight.

Overall, this report has very promising results. An 88.4% removal of grease is outstanding. You must realize the major problem in grease traps, lift stations, and wet wells is mainly animal and vegetable oils and greases. The laboratory bioremediation results will be seen in the actual field results from the use of Micro-Solve™.

If you need any further assistance in this matter, please feel free to contact me.

Sincerely,

Larry M. Gwinn, Jr.