



Test Report

CLIENT:	GreensGroomer® Worldwide	REPORT NUMBER:	50399
	PO Box 34151	LAB TEST NUMBER:	2277-6575
	Indianapolis, Indiana 46234	DATE:	December 15, 2010
		REQUESTED BY:	Tom Moore

Test Material:

Number	Number of Applications
1	Zero (Control)
2	8,640 Applications
3	17,280 Applications
4	25,920 Applications

Test Scope: Testing Services Inc was instructed by the client to determine fiber degradation after prescribed number of "applications" on supplied synthetic turf.

Test Procedure: Samples received were submitted to Dr. David Hall, Forensic Consultant, for analysis by Scanning Electron Microscopy of both the tips and the blade portions of the turf.

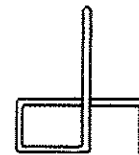
His report is contained on the following attachment. Also included is a CD of all SEM photography.

Approved By:

Erte Miles, Jr VP
 Testing Services Inc

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DAVID M. HALL, Ph.D., PE, FTI, FSDC

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Auburn, Alabama 36830
(334) 844-5454
December 4, 2010

Attn: Mr. Earle Miles
Testing Services Inc.
Post Office Box 2041
Dalton, Georgia 30722-2041

Re: A Study of Four Artificial Turf Samples

INTRODUCTION

Four samples of artificial turf were submitted to determine if any fiber degradation was noted. These samples were labeled as follows:

<u>Sample Number</u>	<u>Number of Applications</u>
1.	Zero (Control)
2.	8,640
3.	17,280
4.	25,920

DISCUSSION

The samples were subjected to a Scanning Electron Microscopic Study of both the tips and the blade portions of the turfs. The results are provided in the attached disk. Although there is some microscopic surface debris, no apparent damage is seen in any of the samples. There is no apparent difference between the Control sample and the other three samples 2-4.

The samples were also subjected to an Energy Dispersive Spectroscopic (EDS) Analysis for elemental ion content. All of the samples have the same elemental composition with negligible variation in the total make-up percentages. The results for all the samples are as follows:


<u>Element Found</u>	<u>Weight %</u>	<u>Atomic %</u>
Carbon	88.47	91.48
Oxygen	10.72	8.32
Titanium	0.27	0.07
Iron	0.30	0.07
Chlorine	0.09	0.03
Zinc	0.15	0.03

CONCLUSIONS

A comprehensive study of four samples of artificial turf for evidence of damage was conducted. This study revealed no significant level of difference in either the ion content of the samples, or the surface structure or tip ends of the samples. No apparent damage of any sort was observed.



Sincerely,



David M. Hall, Ph.D., PE, FFI, FSDC
Forensic Consultant

CONSULTING SERVICES IN THE AREA OF FIBER AND POLYMER SCIENCE

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