



TESTING TECHNOLOGY FOR SPORT

Laboratory Analysis Report

2" 3D3 52 oz. Turf with 1.0 lb Green TPE & 6.0 lbs. Sand over US-ATP20 Pad

Report Number: 96696/8484

Report Status: Final

Client: Guardian Sports

3044 Adriatic Court

Peachtree Corners, GA 30071



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REGIONAL LOCATIONS

-Seattle, Washington

-Columbia, Missouri

-Dallas, Texas

-Los Angeles, California



-Montreal, Quebec

Laboratory Analysis Report

Foreword

This report has been prepared by Sports Labs with all reasonable skill, care, and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.

This report is confidential to the Client, and Sports Labs accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

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Date:	04/23/2025	Date:	04/23/2025
Signed:		Signed:	



Test Laboratory

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Client

Client's Name:	Guardian Sports
Address:	3044 Adriatic Court
City & ZIP Code:	Peachtree Corners 30071
State or Province:	GA
Country:	United States of America

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Product Description		
Product Name:	2" 3D3 52 oz.	
Synthetic Turf Name:	2" 3D3 52 oz.	
Performance Infill:	Green TPE	1.0 lb/ft ²
Stabilizing Infill:	Sand	6.0 lbs/ft ²
Shockpad:	US-ATP20 20 mm Pad	
Substrate:	Concrete	
Pre Lisport Pile Height:	14 mm	
Surface Image:		
<div style="display: flex; justify-content: space-around;">   </div>		
Sample Reference		
Laboratory Job No.	96696	
Sample Reference No.	Synthetic Turf	8484
	Performance Infill	8485
	Stabilising Infill	8486
	Shockpad	8484
Ambient Temperature Range During Testing (unless otherwise stated)		71.0 – 75.0 °F
Ambient Humidity Range During Testing		40 – 60 %

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Performance Testing Results				
Property	Test Method	Test Condition	Mean Result	Requirement
Shock Absorption	ASTM F3189-20	DRY	66%	57 – 68 %
		WET	60%	
		6015 Lisport XL Cycles	63%	
Vertical Deformation	ASTM F3189-20	DRY	8.7 mm	6 – 10 mm
		WET	9.0 mm	
		6015 Lisport XL Cycles	8.3 mm	
Rotational Resistance - Studded	EN 15301-1: 2007	DRY	43 Nm	27 – 48 Nm
		WET	38 Nm	
		6015 Lisport XL Cycles	45 Nm	
Critical Fall Height - HIC	ASTM F3146	DRY	1.41 m	≥ 1.3 m
		WET	1.35 m	
		6015 Lisport XL Cycles	1.22 m	
Gmax	ASTM F1936	DRY	102	No Requirement
		WET	102	
		6015 Lisport XL Cycles	108	
Ball Rebound	EN 12235:2013	DRY	0.74 m	0.60 – 1.00 m
		WET	0.65 m	
		6015 Lisport XL Cycles	0.79 m	

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Performance Testing Results			
Property	Test Method	Test Condition	Mean Result
Water Permeability	EN 12616	FILLED	215 In/hr
		UNFILLED	245 In/hr
Ball Roll	EN 12234 2013	INITIAL	8.41 m
		6015 Lisport XL Cycles	10.44 m

Synthetic Turf - Identification		
Test method		Mean Result
Carpet Mass	ISO 8543: 1998	80.88 Oz/yd ²
Pile Weight	ISO 8543: 1998	53.08 Oz/yd ²
No. of Tufts	ISO 1763: 1986	8531
Pile Length	ISO 2549: 1972	2.10"
Yarn Type	Visual	Blended Turf with thatch

Synthetic Turf – Material Tests			
Test method		Test Condition	Mean Result
Tuft Withdrawal	ISO 4919: 2012	Un-aged	13.15 Lbs.
Carpet Tensile Strength	EN 13934–1: 2013	Un-aged	Direction of Manufacturer
			Perpendicular of Manufacturer
			>200 Lbf
			>200 Lbf

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Synthetic Turf – Heat Test FIFA 14		
Phase	Elapsed Time [min]	Surface Temperature [°F]
1	0	75
	5	93
	10	100
	15	105
	20	109
2	30	114
	40	117
	50	120
	60	122
3	75	125
	90	127
	105	128
	120	129
	135	130
	150	131
	165	132
	180	132

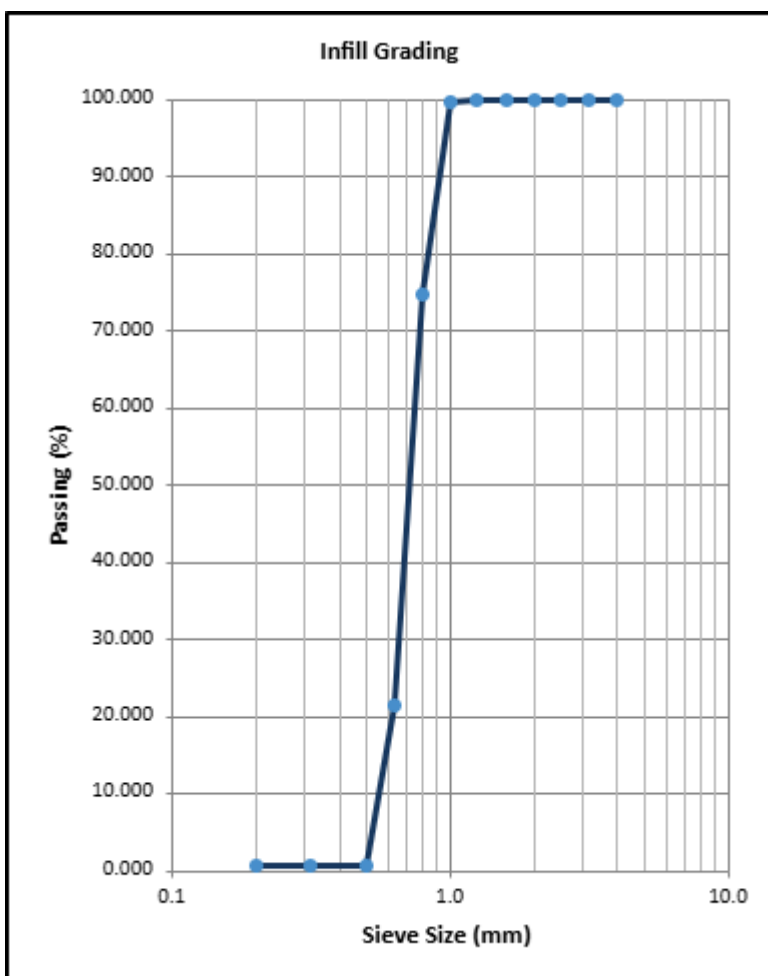
Category	Temperature Range [°F]	System Category
1	<122	
1→2	122→130	
2	131→139	X
2→3	140→149	
3	>149	

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Stabilizing Infill - Identification

Stabilizing Infill Name Sand

Stabilizing Infill – Material Tests



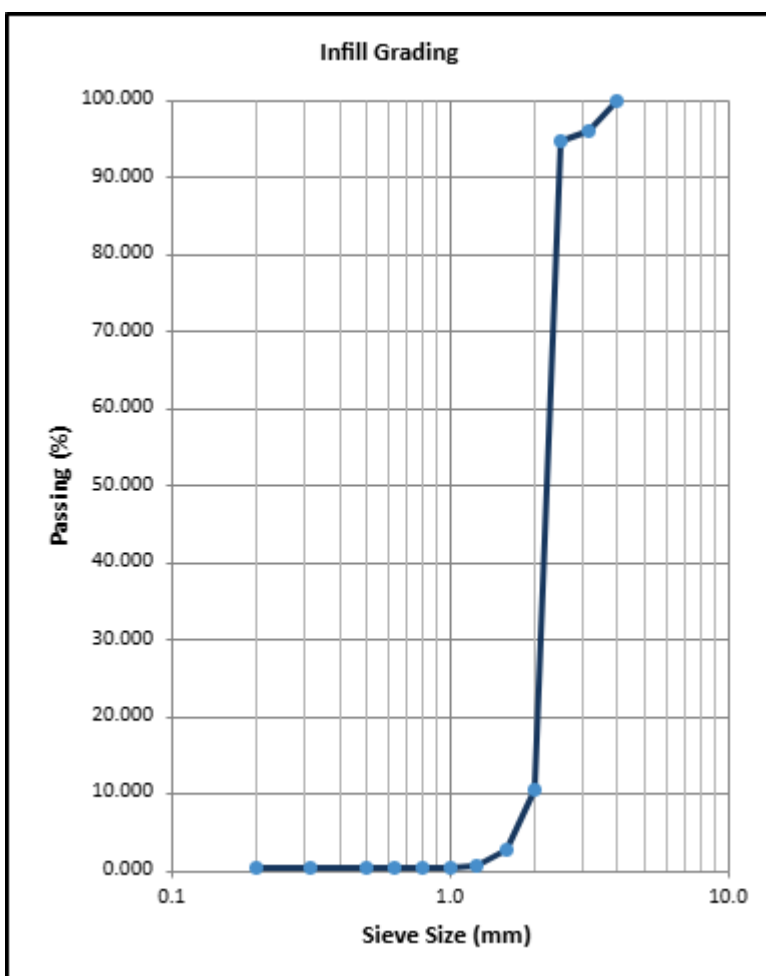
Property	Test Method	Mean Result
Particle Size	EN 933–1: 2012	0.500 – 1.000
Particle Shape	EN 14955: 2005	Round
Color	Visual	White

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Performance Infill - Identification

Performance Infill Name Green TPE

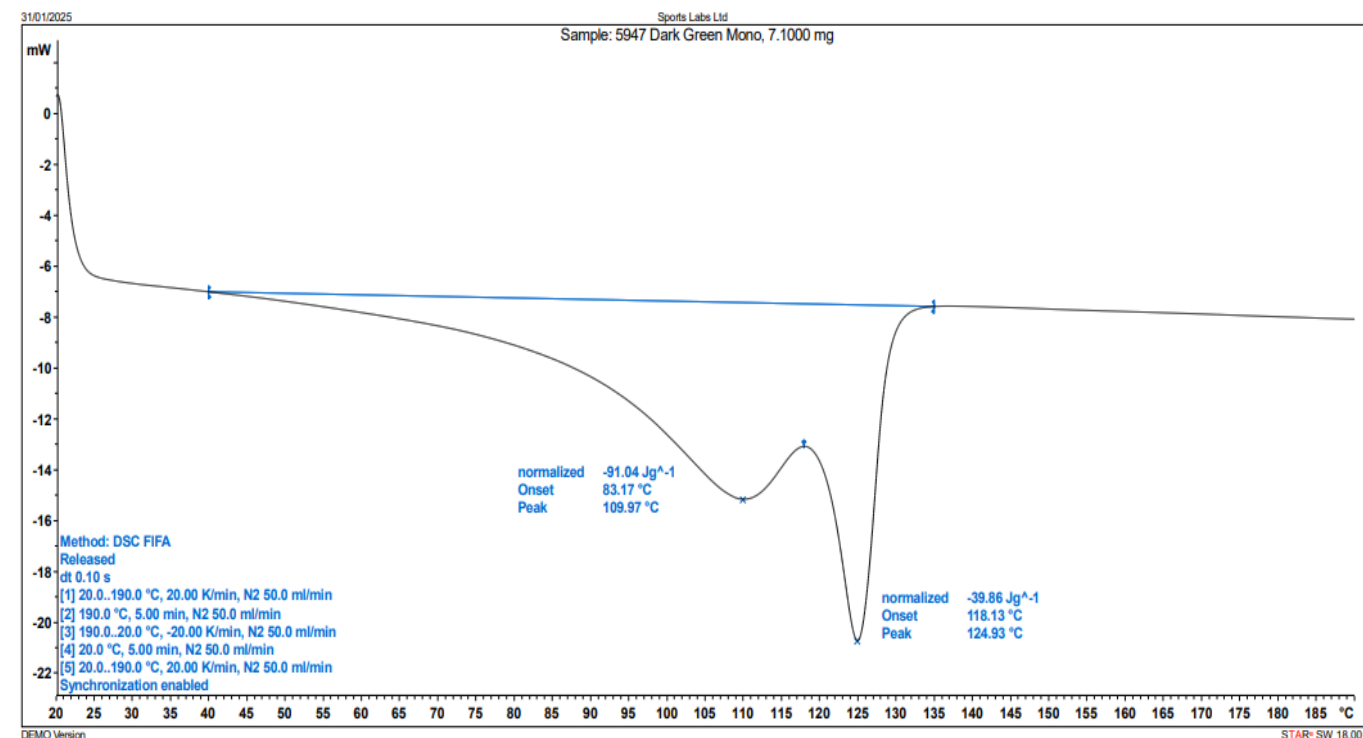
Performance Infill – Material Tests



Property	Test Method	Mean Result
Particle Size	EN 933-1: 2012	1.600 – 2.500
Particle Shape	EN 14955: 2005	Round
Color	Visual	Green

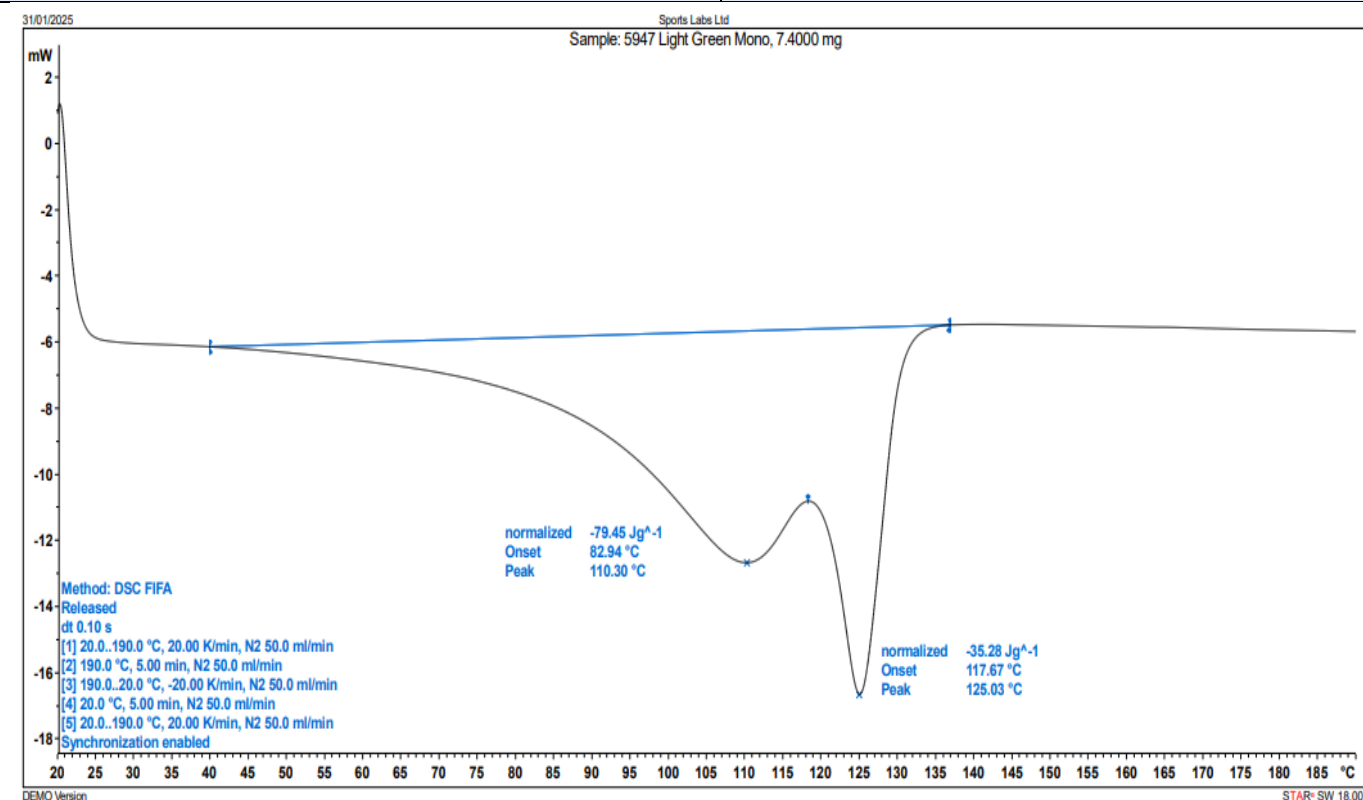
Laboratory Analysis Report

Differential Scanning Calorimetry Results



Dark Green Monofilament - Peak

256.87° F

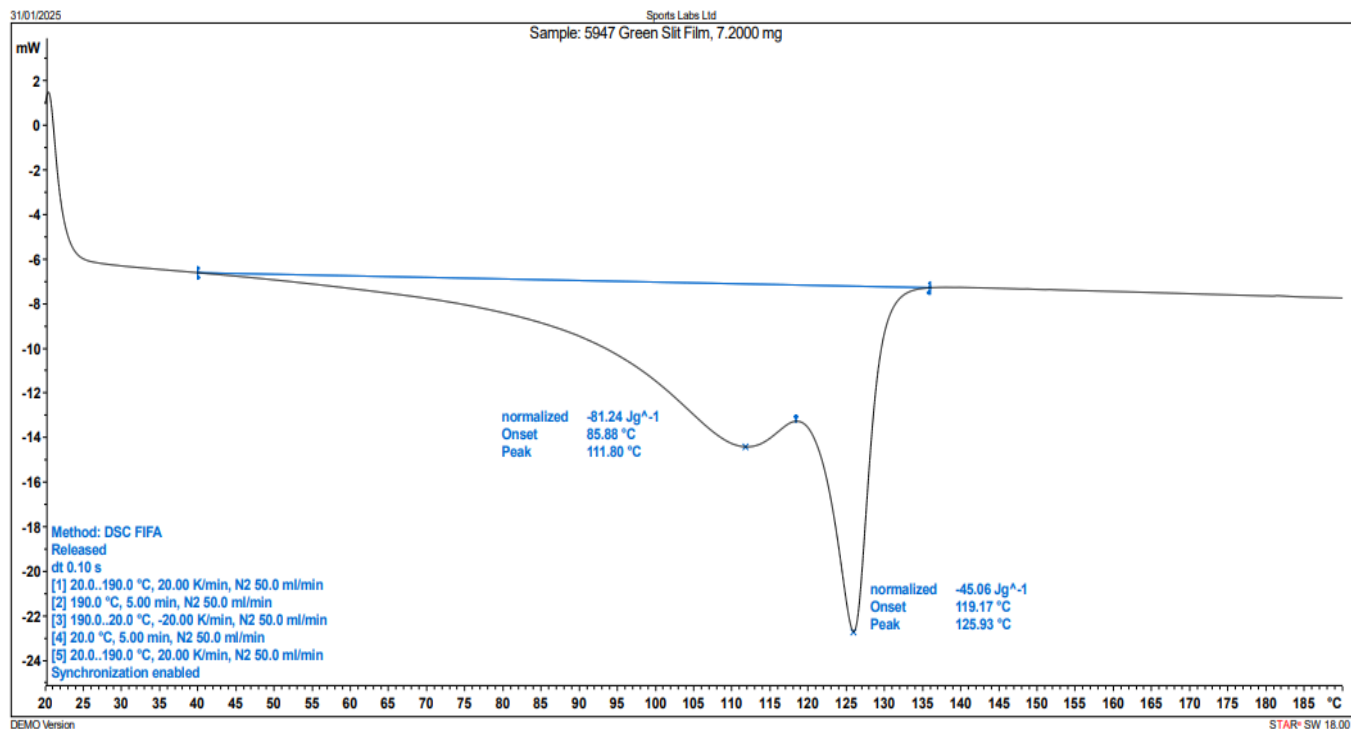


Light Green Monofilament - Peak

257.05° F

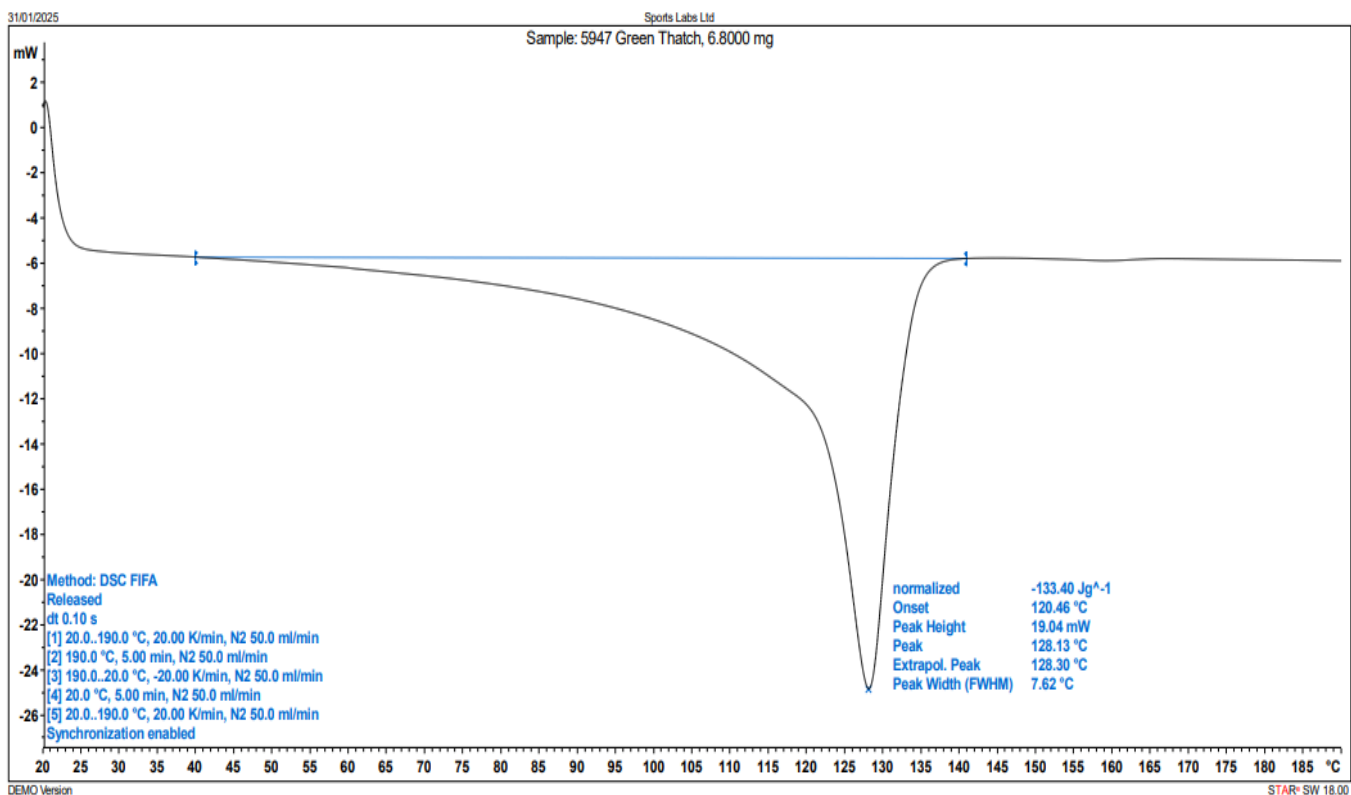
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Differential Scanning Calorimetry Results



Green Slitfilm - Peak

258.67° F



Green Thatch - Peak

262.63° F

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Sample Photos

0 Cycles



2000 Cycles



Laboratory Analysis Report

4000 Cycles



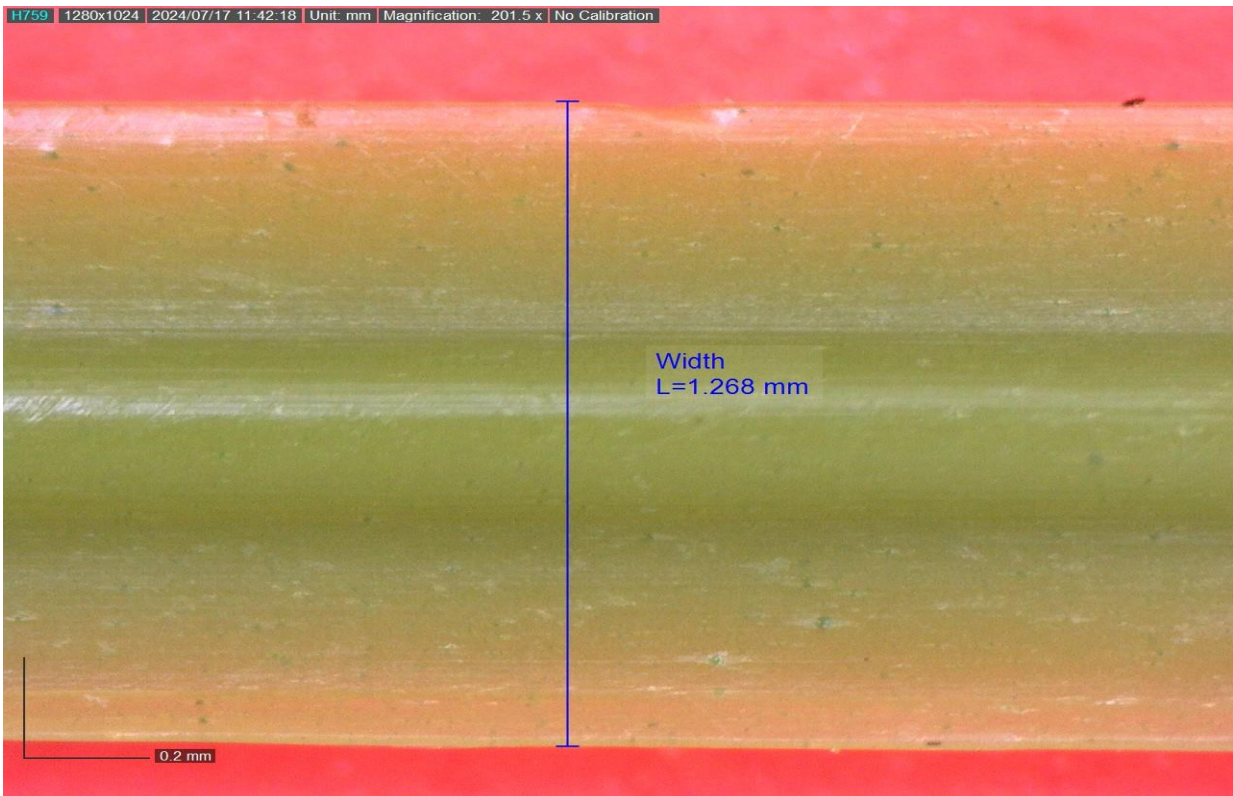
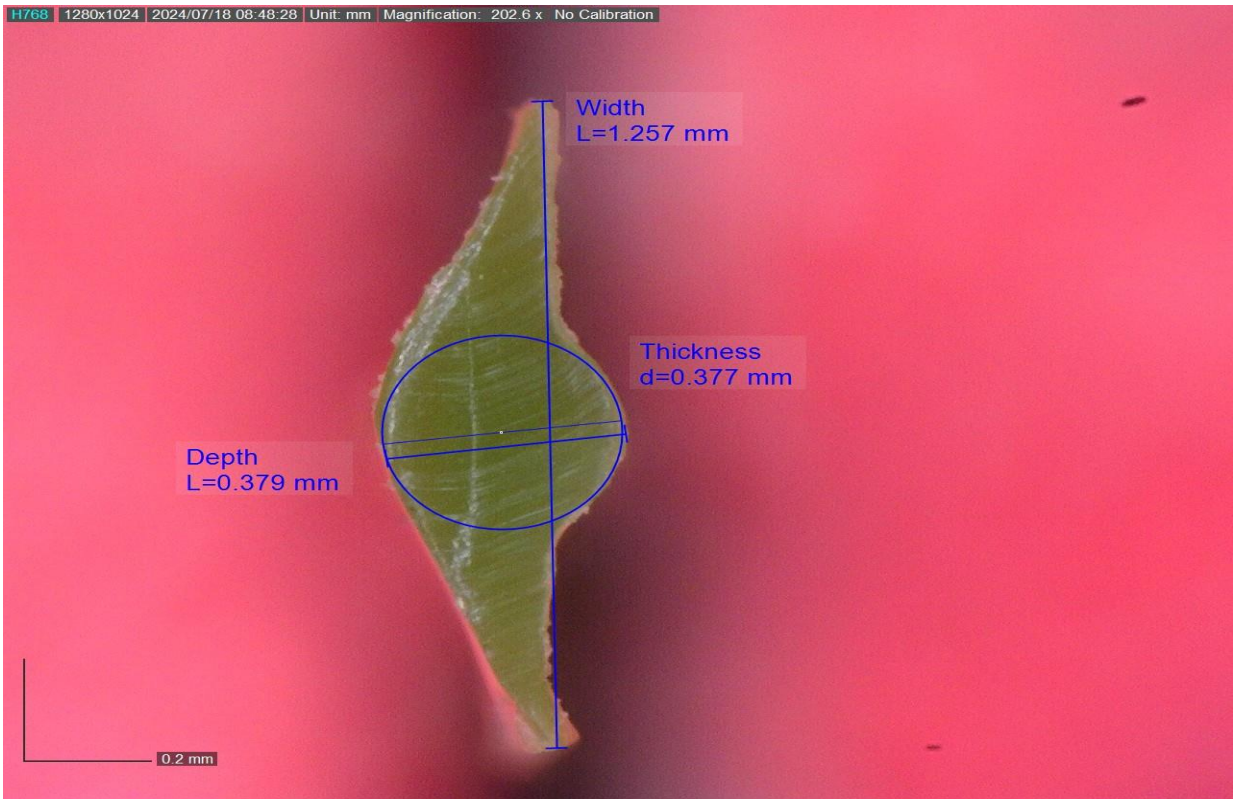
6000 Cycles



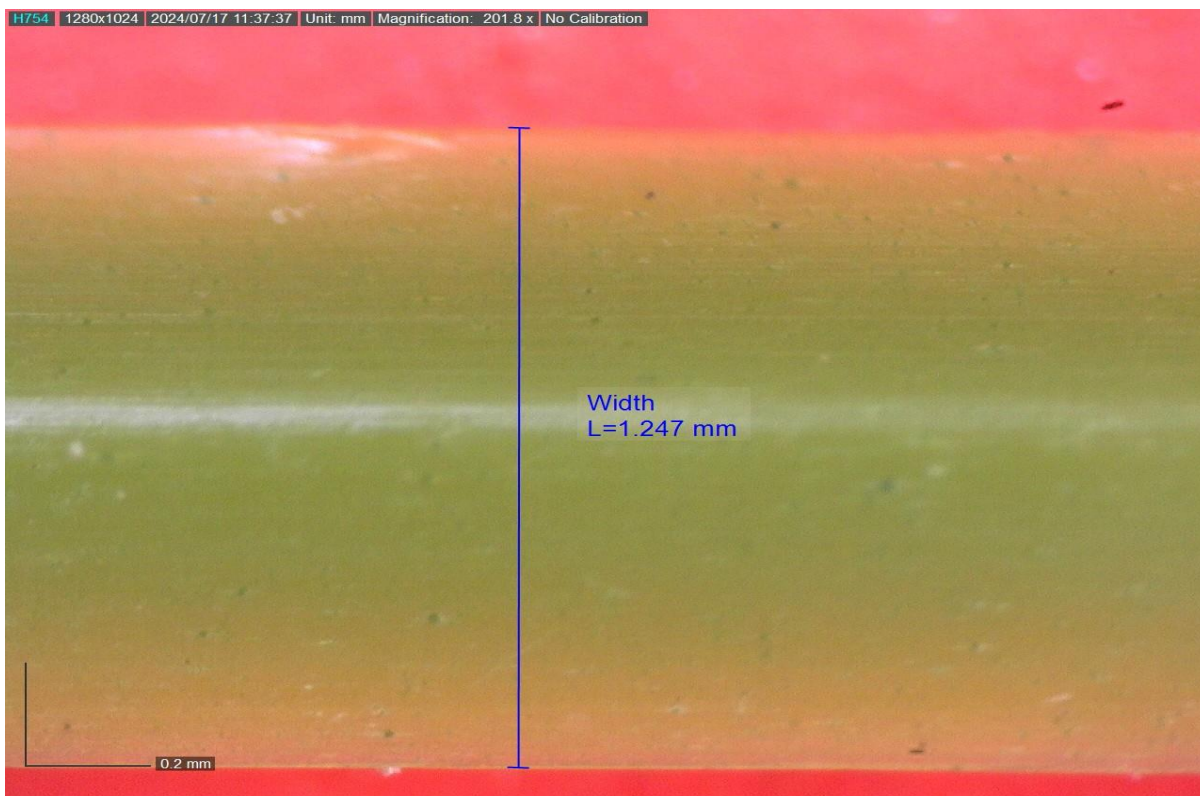
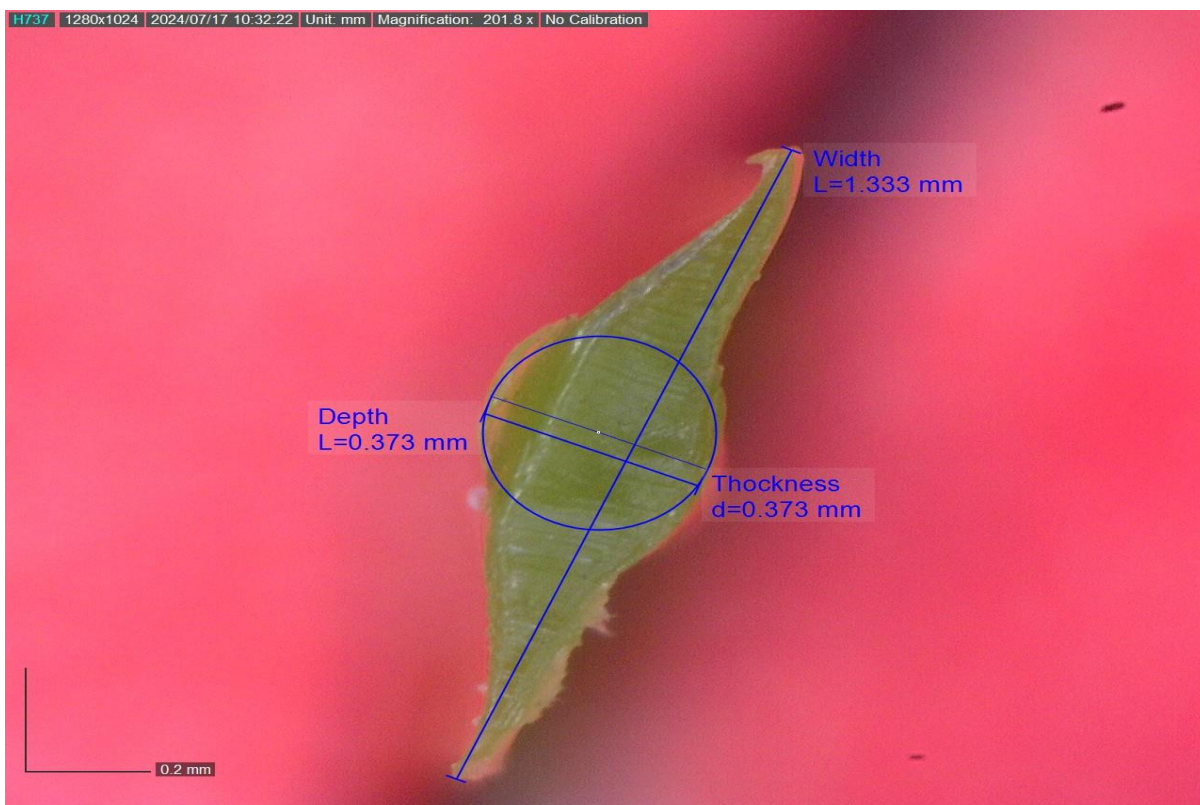
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Microscope Photos

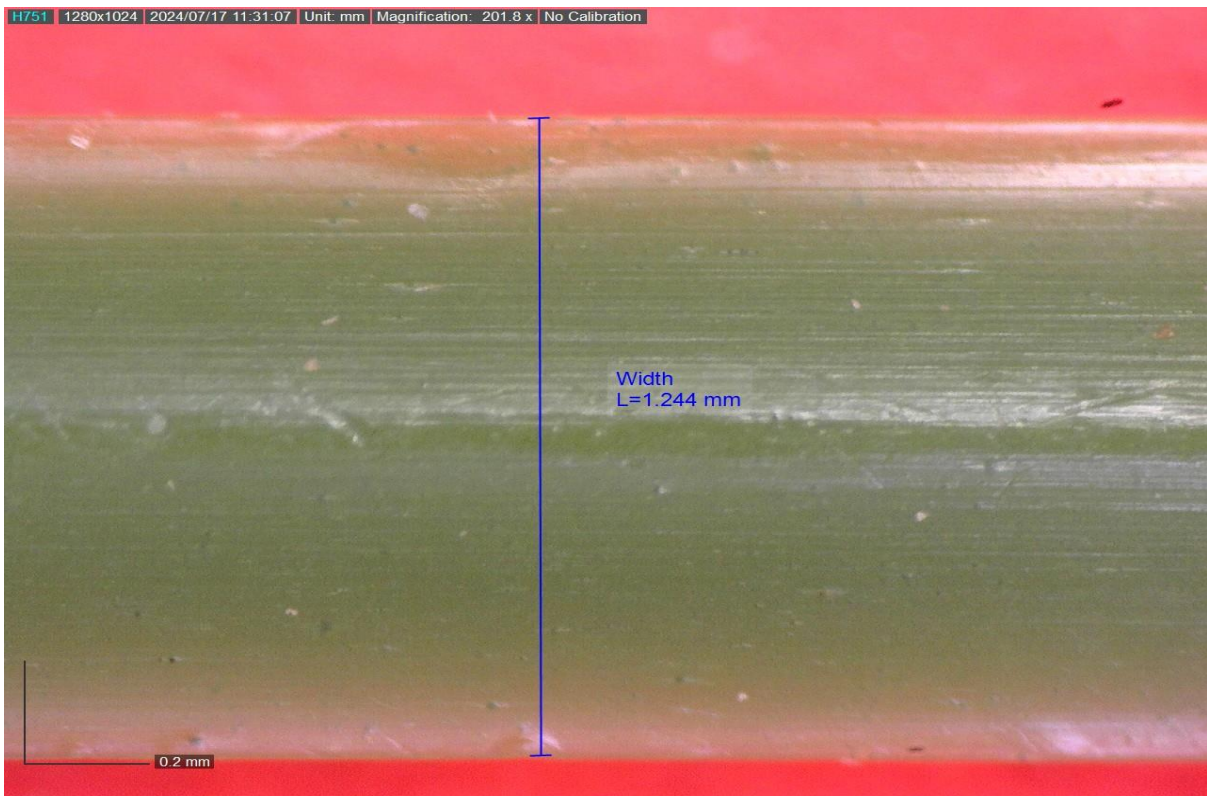
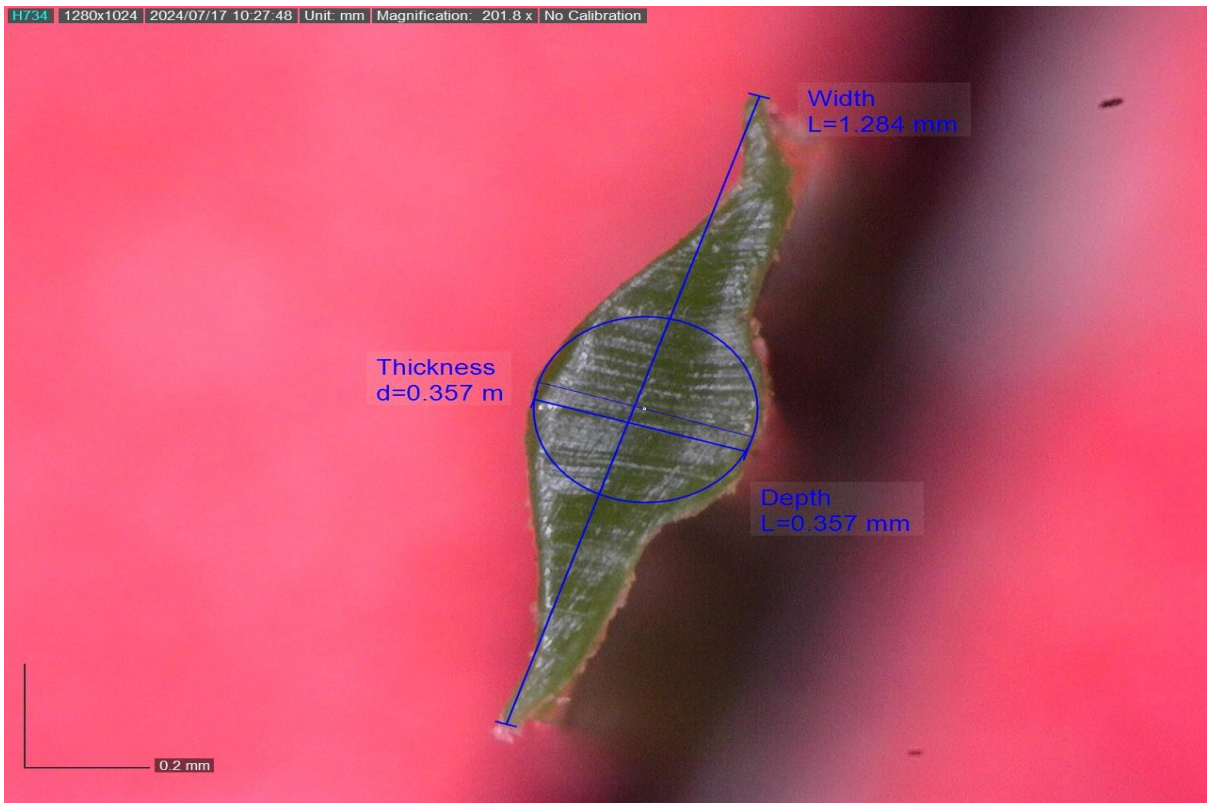
Apple Green Monofilament



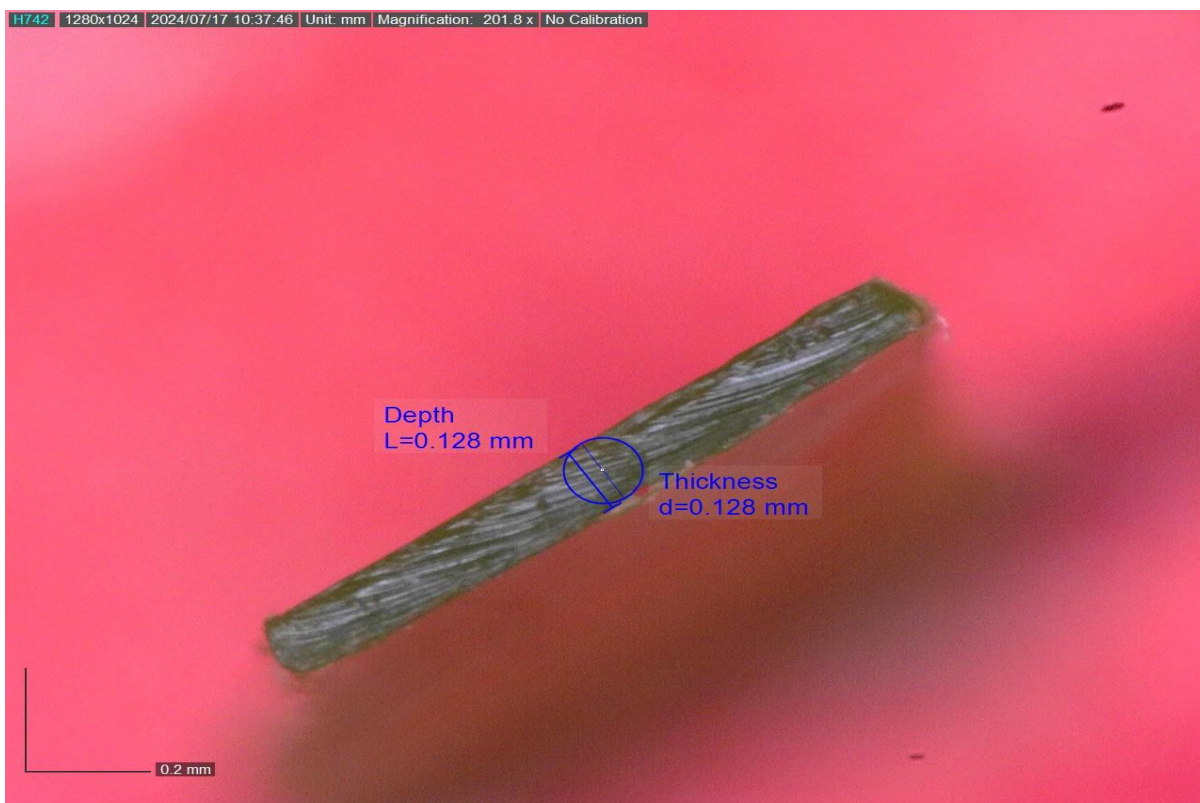
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Laboratory Analysis Report

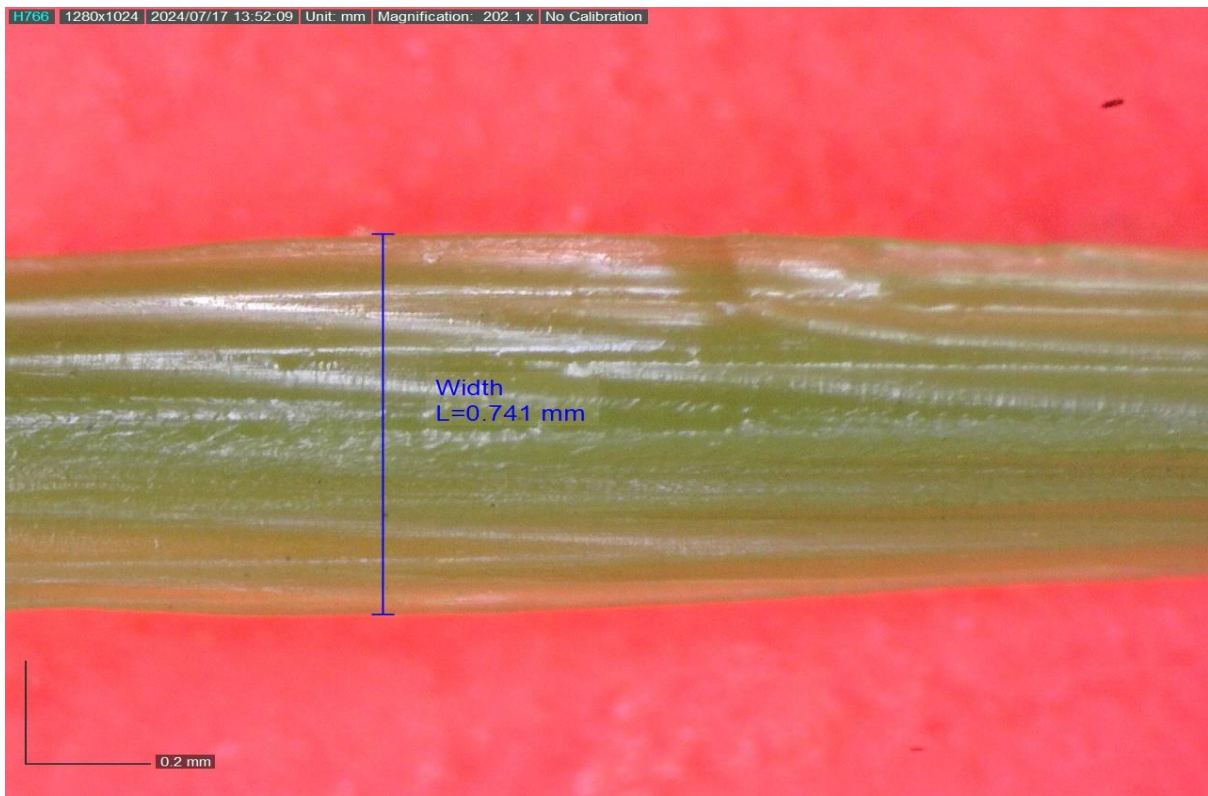
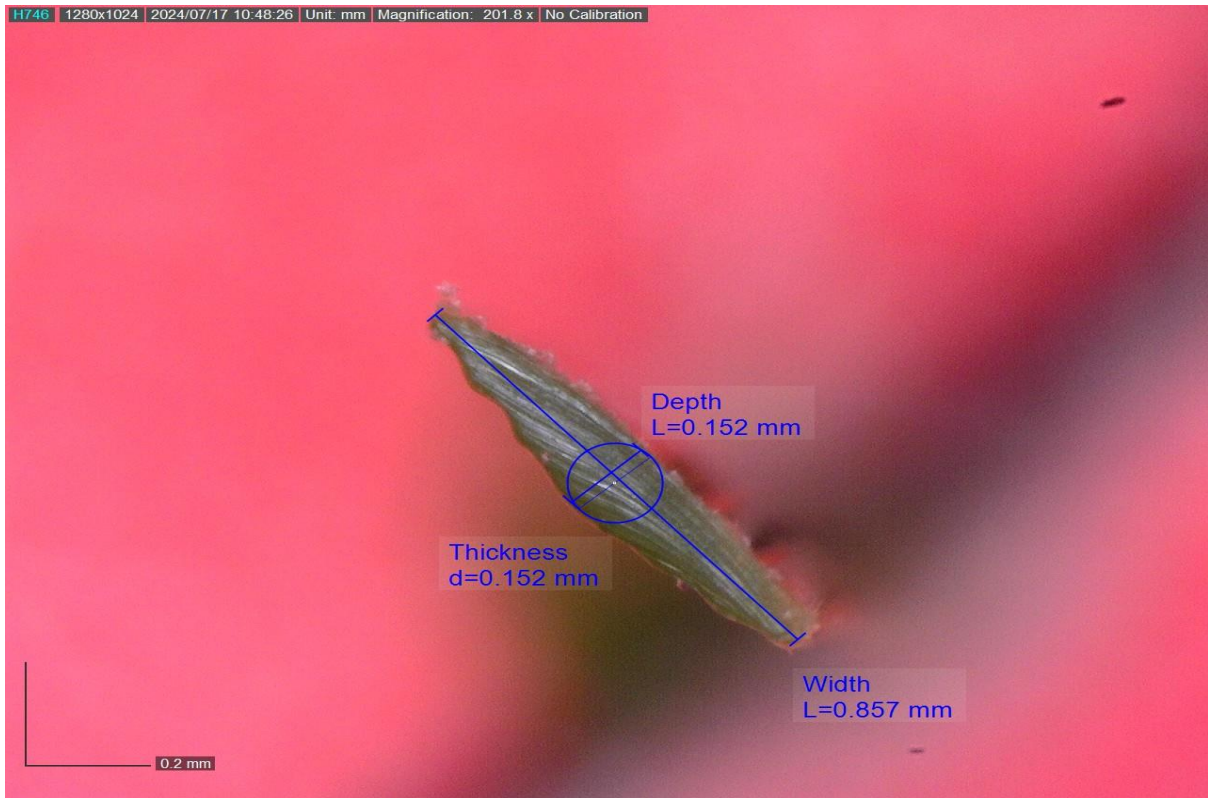


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Green Thatch



END OF REPORT