TEST REPORT

Laboratory evaluation of an infill material for artificial turf system

Tests performed according to EN 15306 and EN 12235 standards

Report Number	**R22647CAN-B1**
Product	**TTII SafeGuard Colour Coated Green Infill** Target Technologies International Inc.
Client	**John B. Giraud** Target Technologies International Inc., 8535 Eastlake Drive, Burnaby, BC V5A 4T7
Date	**December 01st, 2022**

INFORMATION

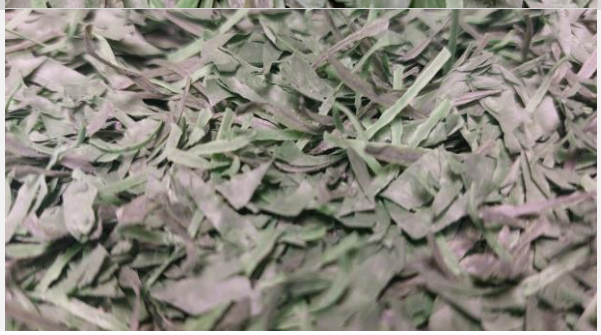
Product description	**Synthetic Turf System filled with stabilising infill: green coated granule**			
Name	**Generic Turf 1.75"**		**TTII SafeGuard Colour Coated Green Infill**	
Sample Number	**US00365 sample**		**CAN004672**	
Date of reception	**November 1st 2022**			
Date of the tests	**November-December 2022**			
Temperature	**Min**	**73°F** *(23°C)*	**Max**	**75°F** *(24°C)*
Humidity	**Min**	**48 %RH**	**Max**	**50 %RH**
Configuration tested				
Name of the turf	**Generic turf** *(monofilament/fibrillated)*			
Pile length	**1.75"** *(45 mm)*			
Sand quantity	**4.2 lb/ft²** *(20.3 kg/m²)*			
Infill depth measured	**1.0"** *(25 mm)*			

US00365 sample – Generic turf

TTII SafeGuard Colour Coated Green Infill – CAN004672

System general view

RESULTS - Simulated wear – Lisport 20,000 cycles – Pictures:

Exposure	General view	Close-up
0 cycle *(before Lisport wearing)*		
5,000 cycles		
10,000 cycles		
15,000 cycles		
20,000 cycles		

Simulated wear – Lisport 20,000 cycles – Measurements:

EN 15306 Standard Lisport simulated wear was performed including measurements every 2,500 cycles as per:
- Infill depth measurements were taken using 3 prong infill depth gauge following EN 1969 standards
- Infill dispersed out of the sample was weighted and replaced into the system
- Free pile length was measured using a glass prism gauge
- Flattening percentage calculated from total pile length of the turf product
- Wearing levels 1 to 5 determined by Labosport technical team

Exposure	Free pile	Yarn flattening	Tuft Loss	Infill Dispersion		Infill depth	Compaction
0 cycles	20 mm	0%	*n/a*	*0*	*n/a*	25 mm	0%
2,500 cycles	20 mm	7%	0 mg	0 g	0%	22 mm	12%
5,000 cycles	20 mm	7%	0 mg	0 g	0%	22 mm	12%
7,500 cycles	19 mm	9%	0 mg	0 g	0%	22 mm	12%
10,000 cycles	19 mm	16%	0 mg	0 g	0%	19 mm	24%
12,500 cycles	19 mm	18%	0 mg	0 g	0%	18 mm	28%
15,000 cycles	18 mm	20%	0 mg	0 g	0%	18 mm	28%
17,500 cycles	18 mm	20%	0 mg	0 g	0%	18 mm	28%
20,000 cycles	18 mm	22%	0 mg	0 g	0%	17 mm	32%

Levels : 1: none / 2: light / 3: moderate / 4: important / 5: high

Comments:

Yarn flattening and tuft loss results showed **no negative effect of the infill to the turf fibers**. The rotation of the studded rollers caused a **light to almost null infill dispersion** at the end of the 20k cycles. The infill material tested here tends to increase the **compaction to an important level reaching the end of the Lisport testing**. Similar compaction levels and yarn flattening are commonly observed on turf installations after 8 to 10 years of utilization with a light maintenance progamme.

Performance testing (after 20,000 cycles Lisport) on a EPP 14 mm shock pad:

Property	Method *(units)*	Results	Recommended range*	Pass/Fail
Shock Absorption	ASTM F3189 / EN 16717 *(%)*	61	55 – 70%	Pass
Vertical Deformation	ASTM F3189 / EN 16717 *(mm)*	7.5	4.0 – 10.0 mm	Pass
Rotational resistance	EN 15301-1 *(N.m)*	44	25 – 50 N.m	Pass
Infill depth	EN 1969 *(mm)*	17	-	-
G_{max} / Impact attenuation	ASTM F355 *(G)*	112	< 165 G	Pass
Vertical Ball Rebound	EN 12235 (m)	0.94	0.60 – 1.00	Pass

**Recommendations are based on FIFA Quality requirements and STC recommendations for Gmax testing*

REPORTED BY

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