TECHNICAL REPORT

Evaluation of the effects of simulated wear (Lisport XL) on a sample of synthetic turf with PRO-gran

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Client **Murfitts Industries**

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SUMMARY

Simulated wear tests have been undertaken on a sample of synthetic turf with PRO-gran infill. This report details the sample tested and the results obtained.

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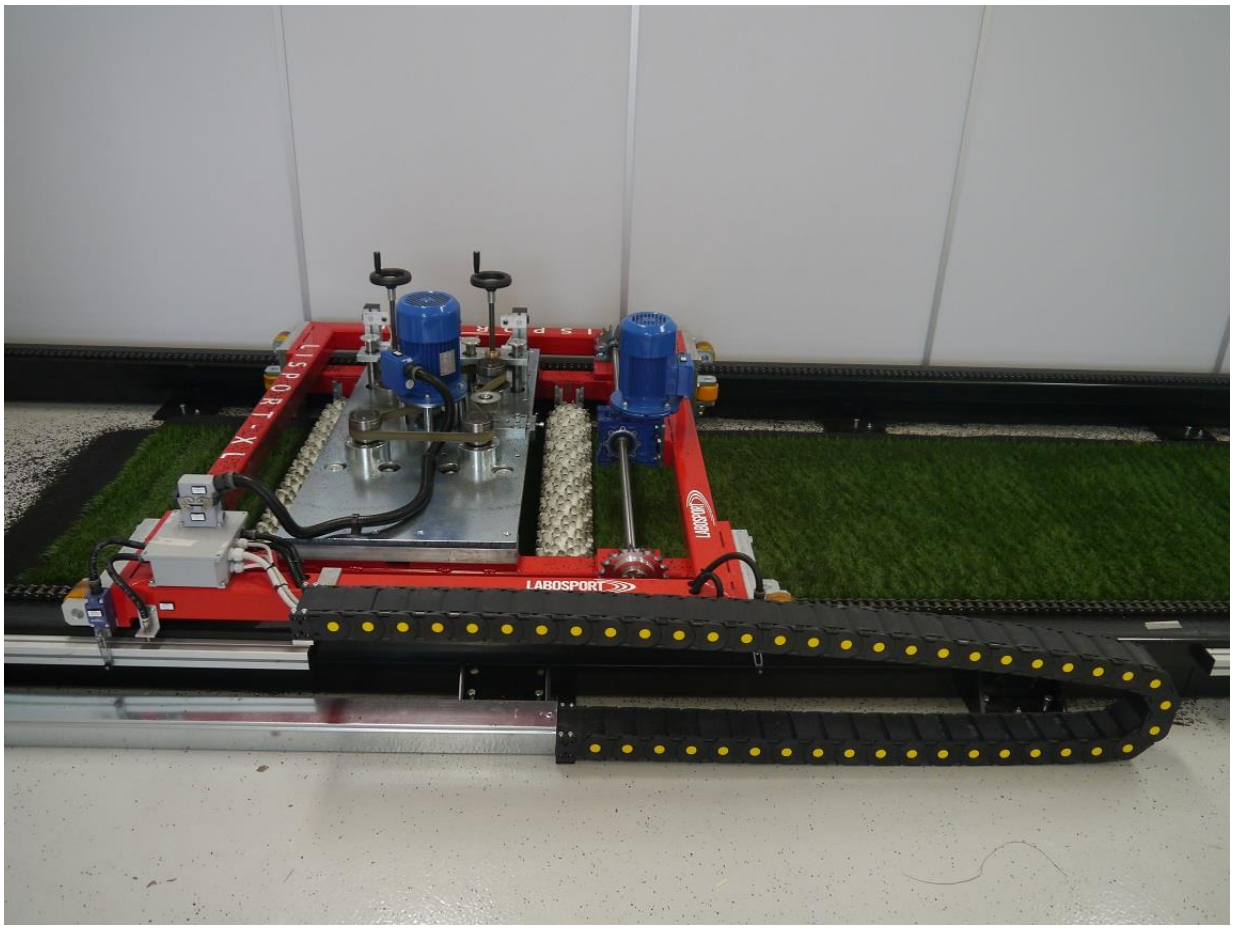
INTRODUCTION

The Lisport® XL wear machine is used to assess the degradation, due to mechanical wear, of synthetic turf. The device simulates high levels of in-game use of synthetic turf in a short period of time under controlled laboratory conditions.

SIS Manufacturing Co. Ltd commissioned Labosport to conduct a test on a sample of synthetic turf labelled MN Ultra vs. Wetekam to evaluate the resistance to wear generated by the Lisport® XL machine on two yarn formulations, MN Ultra and Wetekam.

The Lisport® XL wear machine was developed by Labosport in the later 2000s and has become the industry standard for simulating accelerated wear. It is referenced in many governing body standards and within the European standards for synthetic turf.



TEST SPECIMENS

The test specimen comprised of a sample of synthetic turf (control sample) and PRO-gran manufactured by Murfitts Industries.

Manufacturer	Murfitts Industries
Product Name	PRO-gran
Product Description	Green Polymeric Infill
Synthetic Turf (Control sample)	50mm medium density turf of standard construction

The test specimen was filled with 5kg/m^2 of silica sand and 16kg/m^2 PRO-gran; leaving a free pile of approximately 15mm.

TEST PROGRAMME

The sample was subjected to simulated wear using a Lisport® XL wear machine.

The test procedure is based on the method of test described in the FIFA Handbook of Test Methods for Football Turf (2015 edition).

After each 1,000 cycles the Lisport® XL was stopped to allow displaced infill to be replaced (no additional infill was added). At specified intervals the sample was visually examined and a record of any damage to the pile yarn and infill made, this was recorded with photographic evidence.

RESULTS

Photographs of the synthetic turf and PRO-gran infill are presented within the appendices of this report.

- Appendix A shows a general view, a close-up view and a microscopic photo at every 1,000 cycle interval.

The table below identifies the point at which the synthetic turf and PRO-Gran infill started to show signs of infill dispersion and wear; a scale of 1 to 5 is used to denote the severity at 1,000 cycle intervals.

Number of cycles	Infill Dispersion[1]	Tuft Loss	Pile Wear	Infill Wear
0 cycles	N/A	N/A	N/A	N/A
1,000 cycles	2	1	1	1
2,000 cycles	2	1	2	1
3,000 cycles	2	1	2	1
4,000 cycles	3	1	2	1
5,000 cycles	3	2	3	1
6,000 cycles	3	2	3	1
7,000 cycles	3	2	3	1
8,000 cycles	3	2	3	1
9,000 cycles	3	2	3	1
10,000 cycles	3	3	4	1
11,000 cycles	3	3	4	1
12,000 cycles	3	3	4	1
13,000 cycles	3	3	4	1
14,000 cycles	3	3	4	1
15,000 cycles	3	3	4	1

Key:
1 = no signs
2 = low
3 = moderate
4 = medium
5 = excessive

Note:

[1]Pile Flattening and infill dispersion on installed synthetic turf would be rectified by maintenance which is not fully accounted for during the Lisport XL evaluation with the exception of infill redistribution.

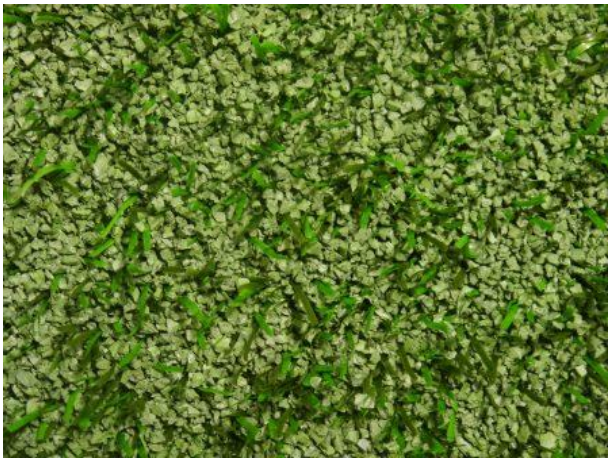
DISCUSSION

The sample of PRO-gran infill showed excellent resilience to the mechanical wear caused by the Lisport XL machine.

At 15,000 cycles the PRO-gran infill was showing no signs of discolouration and no signs of the infill breaking down.

The synthetic turf control sample was in a comparable condition to other tests undertaken in this manner.

APPENDIX A – PHOTOGRAPHS

Initial Condition (0 Cycles)



@ 1,000 Cycles

@ 15,000 Cycles