

## 1. Principle

Test pieces of yarn are exposed to artificial weathering by fluorescent UV lamps under controlled environmental conditions and the resulting changes in colour, appearance and selected physical properties are determined.

## 2. Apparatus

Artificial weathering cabinet using ESTO fluorescent UV lamps and environmental control in accordance to ISO 4892.

## 3. Exposure conditions

LSPT Grass yarn is tested by using ESTO fluorescent ultraviolet lamps artificial weathering cabinet, which is in strictly accordance with the standard of ISO 4892, after exposing them for 1680 hours, then assessing the change in colour and tensile strength of the exposed test specimen.

## 4. Assessment of test specimens

Assess the change in colour of the exposed test specimen when compared to an unexposed test specimen using the grey scale in accordance with EN ISO 20105-A02.

Determine the tensile strength of exposed specimens of the pile yarn(s) and calculate the percentage change in tensile strength compared to test specimens of unexposed yarn.

The following form is the artificial weathering test results of our yarns.

### Effects of artificial weathering

Test Specie(s)	Aspect	Method	Exposure time (hours)	Requirement of FIFA	Test Result
PP yarn(s)	Colour Change	ISO 4892-Part 2	1344	≥ Grey Scale 3	4
	Yarn Tensile Strength	ISO 4892-Part 2	1344	% Change ≤50%	50
PA yarn(s)	Colour Change	ISO 4892-Part 2	1680	≥ Grey Scale 3	4
	Yarn Tensile Strength	ISO 4892-Part 2	1680	% Change ≤50%	40
PE yarn(s)	Colour Change	ISO 4892-Part 2	1680	≥ Grey Scale 3	4
	Yarn Tensile Strength	ISO 4892-Part 2	1680	% Change ≤50%	31

The above figures show that under normal outdoor conditions, our company's PP grass yarn lasts for 8 years under normal outdoor using condition. PA as well as PE grass yarn can be both used for 10 years.

### Test results by chemical method (Unit mg/kg)

Test item(s)	Method	1	MDL	RoHS Limit
Cadmium (Cd)	(1)	ND	2	100
Lead (Pb)	(2)	ND	2	1000
Mercury (Hg)	(3)	ND	2	1000
Hexavalent Chromium (CrVI)	(4)	ND	2	1000

TEST Part Description: Leisurescape Pro-turf (LSPT) PE yarn

Note:

1. mg/kg = ppm
2. ND = Not detected
3. MDL = Method not Limit
4. The maximum permissible limit is quoted from the document 2005/318/EC amending RoHS directive 2002/95/EC