LABOSPORT

RAPPORTO DI PROVA

22-0849IT

Emesso il 20 febbraio 2024

CLIENTE

SAFITEX TURF SRL

DENOMINAZIONE PRODOTTO

PRIMARIO ECO-NEXT / PRIMARIO LATTICE

CATEGORIA

MANTI IN ERBA ARTIFICIALE

Laboratory tests in accordance with:

ISO 4919:2012 Carpets - Determination of tuft withdrawal force

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LIST OF TESTS AND ENVIRONMENTAL CONDITIONS

ISO 4919:2012 Carpets - Tuft tear resistance
Test performed at a temperature of 23 °C ± 2 °C and RH of 50 % ± 4 %.
Sample conditioning for 24 hours at 23 °C ± 2 °C and at 50 % ± 4 % RH.

Internal Aging Method
The test was carried out at the Arcore site.

Chemical analysis DIN 18035-7:2014-10, Phthalates, PAH Detection
Test performed outdoors.

EXTENDED UNCERTAINTY OF METHODS

ISO 4919:2012 Carpets - Tuft tear resistance
The extended uncertainty is estimated to be 7 N.
The extended uncertainty is calculated with a coverage factor (k) equal to 2, corresponding to a confidence level by 95 %.

DECISION CRITERION

For all the tests in this report, the judgments (if any) are expressed by defining the data as conforming when The result, not taking into account the contribution of uncertainty, is within the defined limits.
The level of risk of false acceptance associated with the defined criterion may reach, in the expression of the result of the
test, up to 50%.

IMPORTANT INFORMATION

Reproduction of this test report is only permitted in its entirety. The results are valid only for the sample under test.
The specimens on which the tests have been performed are extracted from the sample as received.
The laboratory declines all responsibility for all information provided by the customer.

OBJECT

Determination of the parameters indicated in the section "List of tests and environmental conditions".

REFERENCE DOCUMENTATION

ISO 4919:2012 Carpets - Determination of tuft withdrawal force

RETENTION TIMES

Storage of documents for 4 years and samples for 1 month from the issuance of the test report.

SAMPLING

Sampling is carried out by the customer.

PLACE OF EXECUTION OF THE TEST

The chemical analyses are carried out externally, the other tests are carried out at the Arcore headquarters.

APPLICANT

Name	SAFITEX's SRL
Address	Via Ugo Foscolo, 33 24024 - Gandines (BG)
Nation	Italy

ACQUISITION DATA

Date of receipt of the order	November 21, 2022
First Sample Receipt Date	June 1, 2023
Last Sample Received Date	June 1, 2024
Laboratory test start date	June 19, 2023
Laboratory test end date	January 14, 2024

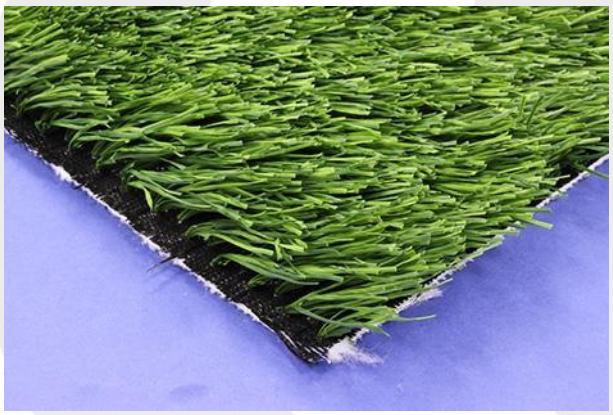
SAMPLE IDENTIFICATION (CUSTOMER INFORMATION)

NA.

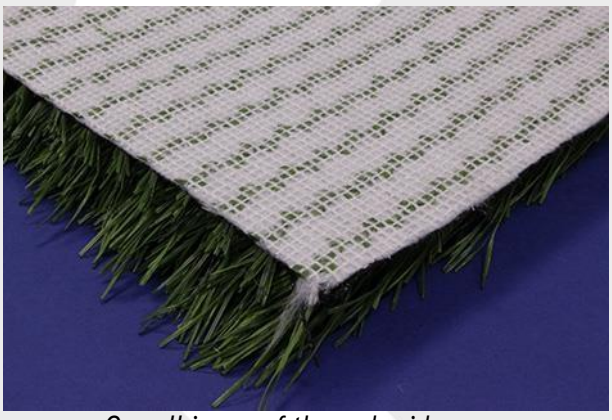
PRODUCT IDENTIFICATION (LABORATORY INFORMATION)

Sample 1: Monofilament artificial turf with eco-next coating Sample 2: Monofilament artificial turf with latex coating.

SAMPLE 1 PRIMARY IN ECO-NEXT



General image of the top side



Overall image of the underside

SAMPLE 2 PRIMARY LATEX

General image of the top side

Overall image of the underside

DESCRIPTION OF THE AGING METHOD

The samples were subjected to 15 "freeze/heat" aging cycles and then to 15 "frost/hot water" aging cycles.
Each "frost/heat" aging cycle includes 48 hours of frost aging at -18 ± 2 °C, 24 hours at room temperature, 48 hours of aging in hot air at 70 ± 2 °C, and 48 hours at room temperature.
Each "frost/hot water" aging cycle includes 48 hours of aging at frost at -18 ± 2 °C, 24 hours at room temperature, 48 hours of aging in hot water at 70 ± 2 °C, and 48 hours at room temperature. Performed a tuft tear test on new specimens and on specimens after 30 aging cycles.
Imaged the backing of products after aging.

TEST RESULTS

ISO 4919:2012 Carpets - Tuft tear resistance
Aging of the samples was performed from June 19, 2023 to January 14, 2024. The tuft tear resistance test was performed on January 18, 2024.
The machine used for the test is a dynamometer used in CRE (Constant Rate of Extension). 20 tufts were tested for each test.

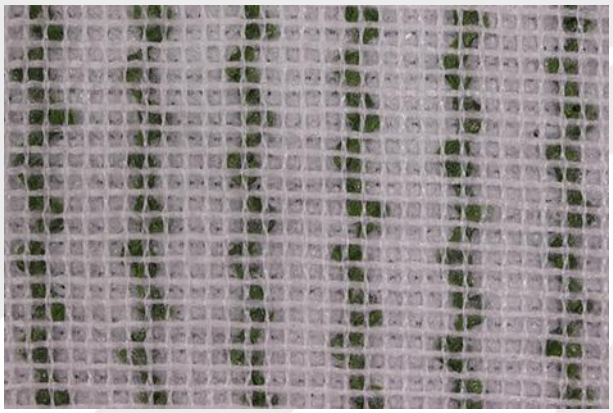
CONDITION	METHOD	SAMPLE 1 PRIMARY IN ECO-NEXT	SAMPLE 2 PRIMARY LATEX
New product	ISO 4919	61.2 N 3,7 %*	64.9 N 3,4 %*
Aged product	ISO 4919+ Internal Aging Method	59.0 N 6,3 %*	46.4 N 7,3 %*

* Standard deviation calculated on readings taken

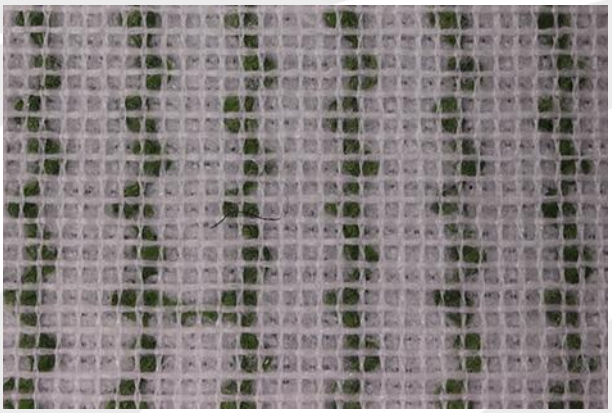
Notes
None.

CONTACT IMAGES

SAMPLE 1 PRIMARY IN ECO-NEXT



New product



Produced after 30 aging cycles

SAMPLE 2 PRIMARY LATEX

New product

Produced after 30 aging cycles

CHEMICAL TESTS PERFORMED ON THE PRODUCT

SAMPLE 1 PRIMARY IN ECO-NEXT

DIN 18035-7:2014-10 Sports grounds - Part 7: Synthetic turf areas

ELEMENTS	REFERENCES	RESULTS	DIN/LND REQUIREMENTS
Lead Pb	NF EN ISO 11885	0.002 mg/l	≤ 0.025 mg/l
Cadmium Cd	NF EN ISO 11885	<0,001 mg/l	≤ 0.005 mg/l
Total chromium Cr	NF EN ISO 11885	0.007 mg/l	≤ 0.050 mg/l
Pond Sn	NF EN ISO 11885	<0,002 mg/l	≤ 0.040 mg/l
Zinc Zn	NF EN ISO 11885	0.096 mg/l	≤ 0.5 mg/l
Hexavalent chromium Cr	NFT 90-043	<0,008 mg/l	≤ 0.008 mg/l
Mercury Hg	NF EN 17852	<0,000015 mg/l	≤ 0.0010 mg/l
DOC Dissolved Organic Carbon	NF EN 1484	33.6 mg/l	≤ 50 mg/l
EOX	DIN 38414-17	33.2 mg/kg	≤ 100 mg/kg
Test Result	Complies with requirements		

Regulation (EU) 2021/1199 (IPA)

POLYCYCLIC AROMATIC HYDROCARBONS	RESULTS	REQUIREMENTS
Benzo(a)piers (BaP)	<0.2 mg/kg	Restriction item 50 Paragraph 5 - Articles. Content of each of the listed PAHs (highlighted in red in the list) ≤ 1 mg/kg.
Benzo(e)pirene	<0.2 mg/kg	
Benzo(a)anthracene	<0.2 mg/kg	
The Crises	<0.2 mg/kg	
Benzo(j+b)fluoranthene	<0.2 mg/kg	
Benzo(k)fluoranthene	<0.2 mg/kg	
Dibenzo(a,h)antracene	<0.2 mg/kg	
Indeno(1,2,3-CD)	<0.2 mg/kg	
Benzo(ghi)perylene	<0.2 mg/kg	
Nagreementse	<0.2 mg/kg	
Acenaftene	<0.2 mg/kg	
Acenaftilene	<0.2 mg/kg	
Anthracene	<0.2 mg/kg	
Fluorantenes	<0.2 mg/kg	
Fluorene	<0.2 mg/kg	
Penantrene	<0.2 mg/kg	
Piers	<0.2 mg/kg	
Sum IPA Reach List	<1.4 mg/kg	
IPA Sum	<3.4 mg/kg	
Test Result	Complies with requirements	

EC Regulation 1907/2006 (Phthalates)

PHTHALATES	RESULTS	REQUIREMENTS EC Regulation 1907/2006
D-isononyl phthalate	<0.001 %	Restrictions item 51 and item 52. Maximum content by weight of plasticized material for all phthalates.
D-isodicil badalathe	<0.001 %	
Diisobutyl phthalate	<0.001 %	
Dibutyl phthalate	<0.001 %	
Phthalic acid, bis-4methyl-2-pentyl ester	<0.001 %	
Benzyl butyl phthalate	<0.001 %	
Bis(2-ethylhexyl) phthalate	<0.001 %	
Di-octyl phthalate	<0.001 %	
DI-Nonyl Pithalet	<0.001 %	
Test Result	Complies with requirements	

SAMPLE 2 PRIMARY LATEX

DIN 18035-7:2014-10 Sports grounds - Part 7: Synthetic turf areas

ELEMENTS	REFERENCES	RESULTS	DIN/LND REQUIREMENTS
Lead Pb	NF AND ISO 11885	0,002 mg/l	≤ 0.025 mg/l
Cadmium Cd	NF AND ISO 11885	<0,001 mg/l	≤ 0.005 mg/l
Total chromium Cr	NF EN ISO 11885	0.001 mg/l	≤ 0.050 mg/l
Pond Sn	NF EN ISO 11885	<0,002 mg/l	≤ 0.040 mg/l
Zinc Zn	NF EN ISO 11885	0.38 mg/l	≤ 0.5 mg/l
Hexavalent chromium Cr	NFT 90-043	<0,008 mg/l	≤ 0.008 mg/l
Mercury Hg	NF EN 17852	<0,000015 mg/l	≤ 0.0010 mg/l
DOC Dissolved Organic Carbon	NF EN 1484	14.1 mg/l	≤ 50 mg/l
EOX	DIN 38414-17	28.6 mg/kg	≤ 100 mg/kg
Test Result	Complies with requirements		

Regulation (EU) 2021/1199 (IPA)

POLYCYCLIC AROMATIC HYDROCARBONS	RESULTS	REQUIREMENTS
Benzo(a)piers (BaP)	<0.2 mg/kg	Restriction item 50 Paragraph 5 - Articles. Content of each of the listed PAHs (highlighted in red in the list) ≤ 1 mg/kg.
Benzo(e)pirene	<0.2 mg/kg	
Benzo(a)anthracene	<0.2 mg/kg	
The Crises	<0.2 mg/kg	
Benzo(j+b)fluoranthene	<0.2 mg/kg	
Benzo(k)fluoranthene	<0.2 mg/kg	
Dibenzo(a,h)antracene	<0.2 mg/kg	
Indeno(1,2,3-CD)	<0.2 mg/kg	
Benzo(ghi)perylene	<0.2 mg/kg	
Nagreementse	<0.2 mg/kg	
Acenaftene	<0.2 mg/kg	
Acenaftilene	0.26 mg/kg	
Anthracene	<0.2 mg/kg	
Fluorantenes	<0.2 mg/kg	
Fluorene	<0.2 mg/kg	
Penantrene	<0.2 mg/kg	
Piers	<0.2 mg/kg	
Sum IPA Reach List	<1.4 mg/kg	
IPA Sum	<3.46 mg/kg	
Test Result	Complies with requirements	

PHTHALATES	RESULTS	REQUIREMENTS EC Regulation 1907/2006
D-isononyl phthalate	<0.001 %	Restrictions item 51 and item 52. Maximum content by weight of plasticized material for all phthalates.
D-isodicil badalathe	<0.001 %	
Diisobutyl phthalate	<0.001 %	
Dibutyl phthalate	<0.001 %	
Phthalic acid, bis-4methyl-2-pentyl ester	<0.001 %	
Benzyl butyl phthalate	<0.001 %	
Bis(2-ethylhexyl) phthalate	<0.001 %	
Di-octyl phthalate	<0.001 %	
DI-Nonyl Pithalet	<0.001 %	
Test Result	Complies with requirements	

TOOLS USED

ISO 4919:2012 Carpets - Tuft tear resistance

Instrument	Constructor	Model	Instrument Sheet
Tape measure	Stanley	Powerlock-Classic	STR229
Dynamometer	MTS	Insight 1	STR165
Load cell	MTS	569327-02	STR166
Datalogger	Text	177-H1	STR018

ADDITIONS, DEVIATIONS, OR EXCLUSIONS FROM THE METHOD

None.

COMMENTS ON THE TESTS

Primary latex.
As a result of the tests carried out and the results obtained after aging, it can be asserted that the latex primary is made in an accurate and durable way. As can be seen from the images, in fact, even after the numerous cycles of heat, cold and immersion, the product does not show any signs of degradation and is indistinguishable from new.
Primary in Econext.
This primary, in addition to having the advantages previously described for latex, combines the safety of filament fixing technology. After the aging cycles, in fact, the tearing of the tuft remains unchanged. The negligible difference is attributable to a specific instrumental modification of the test method but certainly not to an aging of the product.

ADDITIONAL INFORMATION

None.

Direttore del laboratorio
Roberto Armeni

End of the Test Report