

TEST REPORT

15-0545IT

Issued on December 22nd 2015

CLIENT

CHIMIVER PANSERI SPA

PRODUCT NAME

VARIOUS

TYPE

JOINTS

Test according to:

EN 12228:2013 Surfaces for sports areas – Determination of joint strength of synthetic surfaces

CENT/TS 16384:2012 Leaching Test

This report may not be used for commercial purposes unless it is reproduced in its entirety.

The results are valid only for the submitted samples as described in this report.



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SCOPE OF THE TEST PROGRAMME

The joints (samples submitted) were tested in accordance to UNI EN 12228:2013 and the CENT/TS 16384:2012, using the following test procedures.

DOCUMENTS OF REFERENCE

STANDARDS USED

EN 12228:2013 Surfaces for sports areas - Determination of joint strength of synthetic surfaces

EN 13744:2005 Surfaces for sports areas - Procedure for accelerated ageing by immersion in hot water

CENT/TS 16384:2012 Leaching Test

STORAGE TIMES

Storage of documents 4 years and samples 1 month from the issue of the report.

SAMPLING

Sampling is performed by the customer.

ENVIRONMENTAL CONDITIONS IN THE LABORATORY

| Air temperature | Relative humidity |
|-----------------|-------------------|
| 23°C ± 2°C | 50% ± 5% |

CLIENT

COMPANY
ADDRESS

CHIMIVER PANSERI SPA

Via Bergamo, 1401
24030 Pontida (BG)

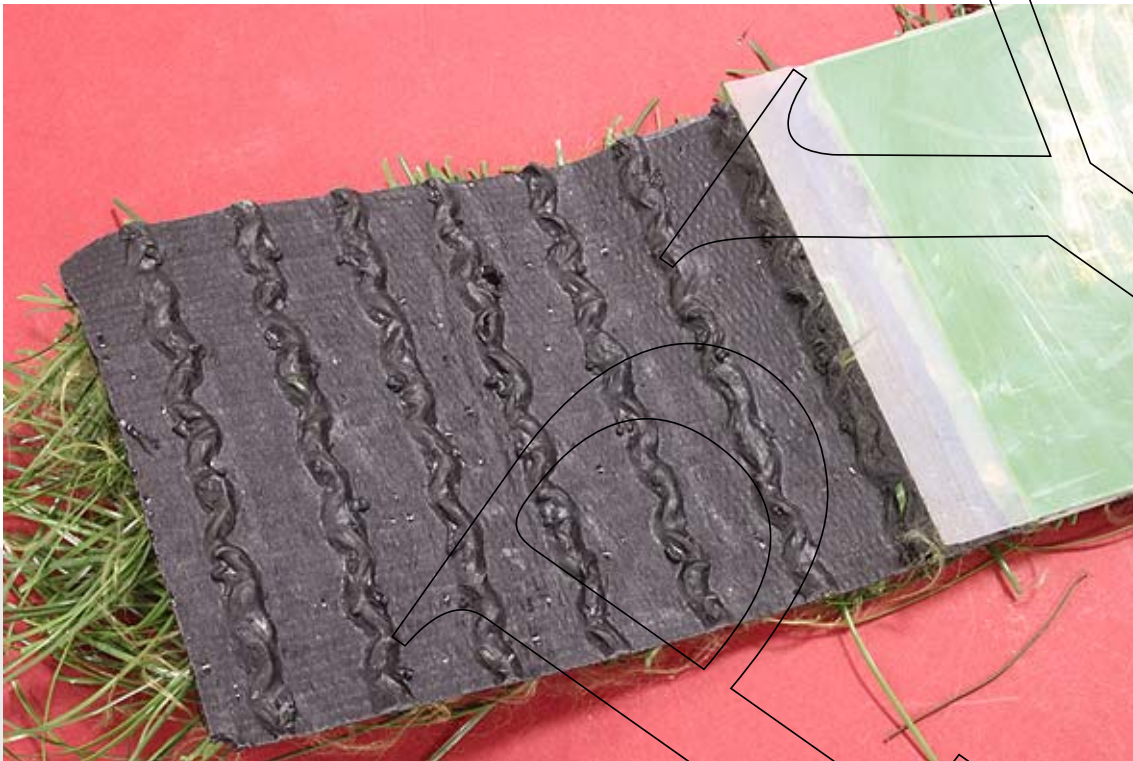
COUNTRY

Italy

DATA ACQUISITION

| | |
|---------------------------------|--------------------------------|
| DATE OF RECEIPT OF ORDER | October 23 rd 2015 |
| DATE OF RECEIPT OF FIRST SAMPLE | November 20 th 2014 |
| DATE OF RECEIPT OF LAST SAMPLE | July 29 th 2015 |
| STARTING DATE OF THE TESTS | November 20 th 2014 |
| ENDING DATE OF THE TESTS | October 23 rd 2015 |

SAMPLE IDENTIFICATION



FIFA joint

| | |
|--|--|
| Product name | ADESIVER GREEN TURF |
| Description (from manufacturer's data sheet) | The joint was realized on an artificial turf with a latex secondary backing, using Chimiver's glue Adesiver Green Turf and a 400mm width tape. |

TESTS RESULTS

| Joint strength bonded seams (N) EN 12228 Method 2 | | | |
|--|-------|--------------------|-------|
| Average unaged | 261N | Average water aged | 222N |
| Requirements : FIFA $\geq 75\text{N}/100\text{mm}$; EN15330-1:2013 Football $\geq 60\text{N}/100\text{mm}$; World Rugby $\geq 25\text{N}/100\text{mm}$ | | | |
| Joint strenght bonded seams (N) EN 12228 Method 1 | | | |
| Average unaged | 2181N | Average water aged | 2063N |
| Requirements : Italian Football Federation unaged $\geq 1500\text{N}/100\text{mm}$, water aged $\geq 1350\text{N}/100\text{mm}$ | | | |

CHEMICAL TESTS

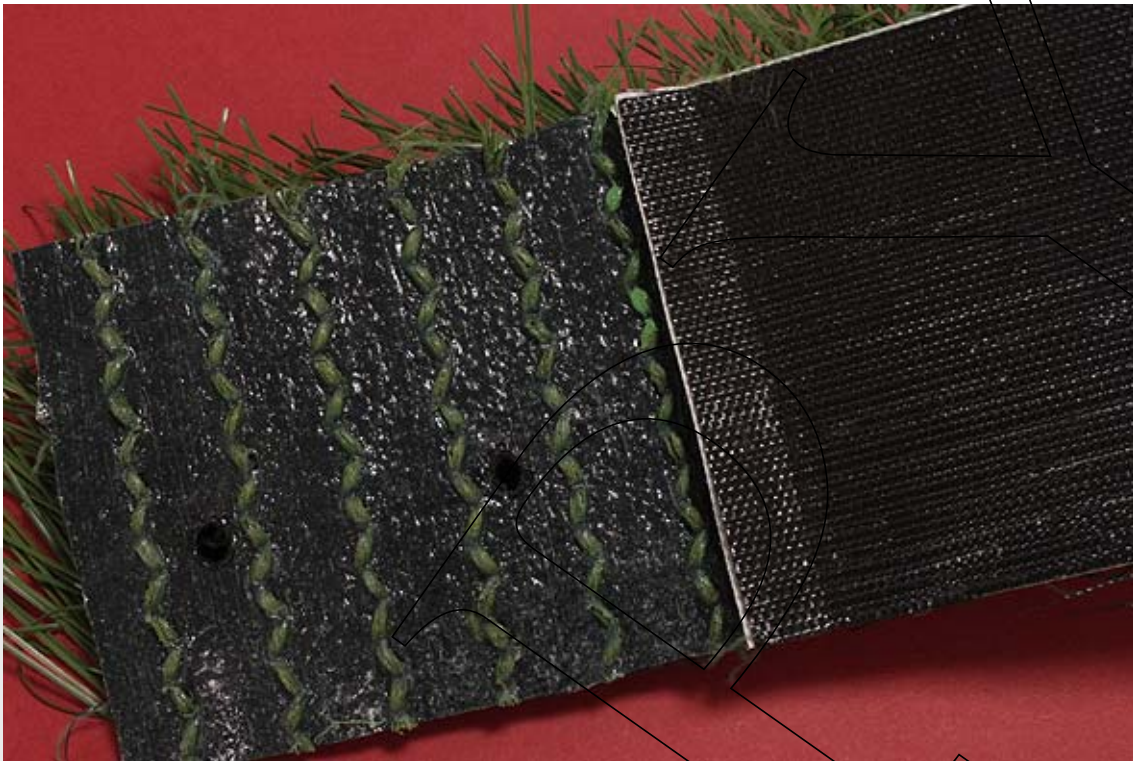
Heavy metals detection (DIN 18035-7 requirements)

| Elements | Results | DIN requirements |
|------------------------------|--------------|------------------|
| Lead Pb | <0.001mg/l | ≤ 0,040 mg/l |
| Cadmium (Cd) | <0.001 mg/l | ≤ 0,005 mg/l |
| Chromium Cr total | <0.001 mg/l | ≤ 0,050 mg/l |
| Chromium VI Cr | <0,008 mg/l | ≤ 0,008 mg/l |
| Mercury Hg | <0.0001 mg/l | ≤ 0,0010 mg/l |
| Tin Sn | <0.001 mg/l | ≤ 0,050 mg/l |
| Dissolved Organic Carbon DOC | 4.5 mg/l | ≤ 40 mg/l |
| Zinc Zn | 0.074 mg/l | ≤ 20 mg/l |
| Result | Pass | |

PAH detection

| Elements | Results (mg/kg) |
|--------------------------|-----------------|
| Naphtalène | 0.005 mg/kg |
| Acenaphtylène | <0.005 mg/kg |
| Acenaphtène | <0.005 mg/kg |
| Fluorène | <0.005 mg/kg |
| Phenanthrène | 0.005 mg/kg |
| Anthracène | <0.005 mg/kg |
| Fluoranthène | <0.005 mg/kg |
| Pyrène | <0.005 mg/kg |
| Benzo(A) Anthracène | <0.005 mg/kg |
| Chrysène | <0.005 mg/kg |
| Benzo(B) Fluoranthène | <0.005 mg/kg |
| Benzo(K) Fluoranthène | <0.005 mg/kg |
| Benzo(A) Pyrène | <0.005 mg/kg |
| Indeno 1,2,3 (CD) Pyrène | <0.005 mg/kg |
| Dibenzo(A,H) Anthracène | <0.005 mg/kg |
| Benzo(G,H,I) Perylène | <0.005 mg/kg |

SAMPLE IDENTIFICATION



joint

| | |
|--|---|
| Product name | ADESIVER GREEN |
| Description (from manufacturer's data sheet) | The joint was realized on an artificial turf with a polyolefin secondary backing, using Chimiver's glue Adesiver Green and a 400mm. width tape. |

TESTS RESULTS

| Joint strength bonded seams (N) EN 12228 Method 2 | | | |
|--|-------|--------------------|-------|
| Average unaged | 174N | Average water aged | 165N |
| Requirements : FIFA $\geq 75N/100mm$; EN15330-1:2013 Football $\geq 60N/100mm$; World Rugby $\geq 25N/100mm$ | | | |
| Joint strenght bonded seams (N) EN 12228 Method 1 | | | |
| Average unaged | 2316N | Average water aged | 1845N |
| Requirements : Italian Football Federation unaged $\geq 1500N/100mm$, water aged $\geq 1350N/100mm$ | | | |

CHEMICAL TESTS

Heavy metals detection (DIN 18035-7 requirements)

| Elements | Results | DIN requirements |
|------------------------------|--------------|------------------|
| Lead Pb | <0.001mg/l | ≤ 0,040 mg/l |
| Cadmium (Cd) | <0.001 mg/l | ≤ 0,005 mg/l |
| Chromium Cr total | <0.001 mg/l | ≤ 0,050 mg/l |
| Chromium VI Cr | <0.008 mg/l | ≤ 0,008 mg/l |
| Mercury Hg | <0.0001 mg/l | ≤ 0,0010 mg/l |
| Tin Sn | <0.001 mg/l | ≤ 0,050 mg/l |
| Dissolved Organic Carbon DOC | 2.55 mg/l | ≤ 40 mg/l |
| Zinc Zn | 0.156 mg/l | ≤ 20 mg/l |
| Result | Pass | |

PAH detection

| Elements | Results (mg/kg) |
|--------------------------|-----------------|
| Naphtalène | 0.076 mg/kg |
| Acenaphtylène | <0.005 mg/kg |
| Acenaphtène | <0.005 mg/kg |
| Fluorène | 0.006 mg/kg |
| Phenanthrène | <0.005 mg/kg |
| Anthracène | <0.005 mg/kg |
| Fluoranthène | <0.005 mg/kg |
| Pyrène | <0.005 mg/kg |
| Benzo(A) Anthracène | <0.005 mg/kg |
| Chrysène | <0.005 mg/kg |
| Benzo(B) Fluoranthène | <0.005 mg/kg |
| Benzo(K) Fluoranthène | <0.005 mg/kg |
| Benzo(A) Pyrène | <0.005 mg/kg |
| Indeno 1,2,3 (CD) Pyrène | <0.005 mg/kg |
| Dibenzo(A,H) Anthracène | <0.005 mg/kg |
| Benzo(G,H,I) Perylène | <0.005 mg/kg |

EQUIPMENT USED

UNI EN 12228:2013 Surfaces for sports areas – Determination of joint strength of synthetic surfaces

| Equipment | Model | Serial number | Internal code |
|---------------------|----------------|-----------------|---------------|
| Cella di carico MTS | 5KN | 205083 | STR150 |
| MTS | Insight | 39991 | STR165 |
| Datalogger | 117-H1 | 01333640/702 | STR018 |
| Climatizzatore | BXN0-A022 E | BX-CT0022AA001H | STR127 |
| PC | Latitude E5500 | 7567D450 | STR099 |

UNI EN 13744:2005 Surfaces for sports areas. Procedure for accelerated ageing by immersion in hot water

| Equipment | Model | Serial number | Internal code |
|--------------|-------|---------------|---------------|
| Stufa Binder | BF720 | 09-10549 | STR110 |

ADDITIONAL INFORMATION

None

CONCLUSIONS

None

Laboratory director
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Technician
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