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ÁREA **SPORT**

Test Report

Report No.: HQR190430002

Sample Name: Children playground flooring

Report Date: June 6th, 2019

Jiangsu Zhongzheng Testing Co., Ltd



BWF
Testing Laboratory



Test Report

Report No.: HQR190430002

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Applicant:

NANJING FEELING RUBBER & PLASTIC
PRODUCES CO.,LTD

Manufacturer:

NANJING FEELING RUBBER & PLASTIC
PRODUCES CO.,LTD

No.11 of Lanhua Road, Qiaolin Industrial
Park, Pukou district, Nanjing city, Jiangsu
province, China

Test subject (Sample):

Children playground flooring

Model:

FNR0120

Date of sample receipt:

April 30th, 2019

Date of testing:

May 5th, 2019 to June 6th, 2019

**Head of accredited testing
laboratory:**

Jiangsu Zhongzheng Testing Co., Ltd

Stamp:

Jiangsu Zhongzheng Testing Co., Ltd



Tested by: Jia Zuxiao (print)

贾祖孝

Approved by: Yu Aiping (print)

余爱萍

ÁREA **SPORT** SPA
EXCLUSIVO EN CHILE
CONSTRUCTORA ERAY JORGE.
proyecto: Mejoramiento Parque Brasil.
Comuna de La Granja.



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1. TESTING STANDARDS

EN 1177:2018 Impact absorbing playground surfacing – Safety requirements and test methods.

2. SPECIFICATION OF SUBJECT OF TESTING (GIVEN BY THE APPLICANT)

1. Specification of samples:

Children Playground Flooring – FRN01-20 was constructed in two layers. The bottom layer was formed of resin-bound, red and white EPDM crumbs, approximately 28.20mm thick. The top layer was formed of resin-bound, red EPDM crumbs, 24.56mm thick, giving an overall measured thickness of 52.76mm. Its Weight per Unit Area was 47.92kg/m². The color is 2350U Refer to PANTONE)

2. Product purpose

Children playground flooring material

3. LABORATORY DECLARATION

The test results refer only to the tested product.

The test report may not be duplicated except in full without the written consent of the testing laboratory.

The client ordering the tests has a right to submit comments on the test results specified in this report of the accredited testing laboratory Jiangsu Zhongzheng Testing Co., Ltd within 15 days of the report delivery.

4. CONCLUSION

When tested to EN1177:2018, the Critical Fall Height of Children Playground Flooring – FRN01-20 = 1.32 ± 7%*m*.



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5. TEST RESULTS

1. Test procedure

The performance characteristic measured is Critical Fall Height, which was measured using the method EN 1177:2018 Impact absorbing playground surfacing – Safety requirements and test methods.

Critical fall height

The sample was tested to determine its Critical Fall Height using the method of test described in EN 1177:2018 Impact absorbing playground surfacing – Safety requirements and test methods.

In this test, a hemispherical ended head-form of mass 4.6kg is dropped from progressively greater heights onto the sample. The Head Injury Criterion (HIC) of each impact is calculated from the acceleration/time record of the impact, using the formula:

$$\text{H.I.C.} = \left[\frac{\int_{t_1}^{t_2} a \cdot dt}{(t_2 - t_1)} \right]^{2.5} \times (t_2 - t_1) \Big]_{\text{max.}}$$

The Critical Height is determined by producing a 'best fit' curve for the various HIC values against drop height and interpolating to obtain the drop height corresponding to an HIC of 1000 and a $g_{\text{max}} < 200g$. The test is carried out in nine positions. The Critical Fall Height quoted is the lowest value obtained from any of the positions tested and is expressed in metres.



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5.2 Test record

| Test position | Drop Height (m±0.01) | HIC Value(s) | HIC Interval(ms) | Height(m±0.01) at which HIC=1000 |
|-------------------------------|----------------------|--------------|------------------|----------------------------------|
| 1 Centre of tile A | 0.80 | 410 | 105 | |
| | 1.10 | 713 | 145 | |
| | 1.30 | 949 | 164 | |
| | 1.40 | 1099 | 174 | 1.34 |
| 2 Joint tile A/B | 0.80 | 432 | 108 | |
| | 1.10 | 687 | 137 | |
| | 1.30 | 900 | 156 | |
| | 1.40 | 1023 | 169 | 1.39 |
| 3 Centre of tile B | 0.80 | 426 | 107 | |
| | 1.10 | 747 | 141 | |
| | 1.30 | 946 | 161 | |
| | 1.40 | 1091 | 173 | 1.32 |
| 4 Joint tile A/C | 0.80 | 455 | 112 | |
| | 1.10 | 699 | 138 | |
| | 1.30 | 930 | 161 | |
| | 1.40 | 1075 | 174 | 1.36 |
| 5 Corner of 4 tiles | 0.80 | 400 | 103 | |
| | 1.10 | 701 | 137 | |
| | 1.30 | 942 | 161 | |
| | 1.40 | 1056 | 171 | 1.36 |
| 6 Joint tile B/D | 0.80 | 387 | 102 | |
| | 1.10 | 692 | 137 | |
| | 1.30 | 935 | 161 | |
| | 1.40 | 1089 | 174 | 1.34 |
| 7 Centre of tile C | 0.80 | 384 | 100 | |
| | 1.10 | 703 | 136 | |
| | 1.30 | 912 | 158 | |
| | 1.40 | 1084 | 170 | 1.35 |
| 8 Joint tile C/D | 0.80 | 415 | 104 | |
| | 1.10 | 742 | 140 | |
| | 1.30 | 935 | 158 | |
| | 1.40 | 1048 | 168 | 1.36 |
| | 0.80 | 386 | 99 | |



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| | | | | |
|-------------------------------------|------|------|-----|------|
| 9 Centre of tile D | 1.10 | 700 | 133 | |
| | 1.30 | 915 | 153 | |
| | 1.40 | 1041 | 165 | 1.36 |

BS EN 1177 defines the Critical Fall Height as the lowest of the results obtained (see bold figures above)

The Critical Fall Height of Children Playground Flooring – FRN01-20 = 1.32 ± 7%*m*.

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Comuna de La Granja.





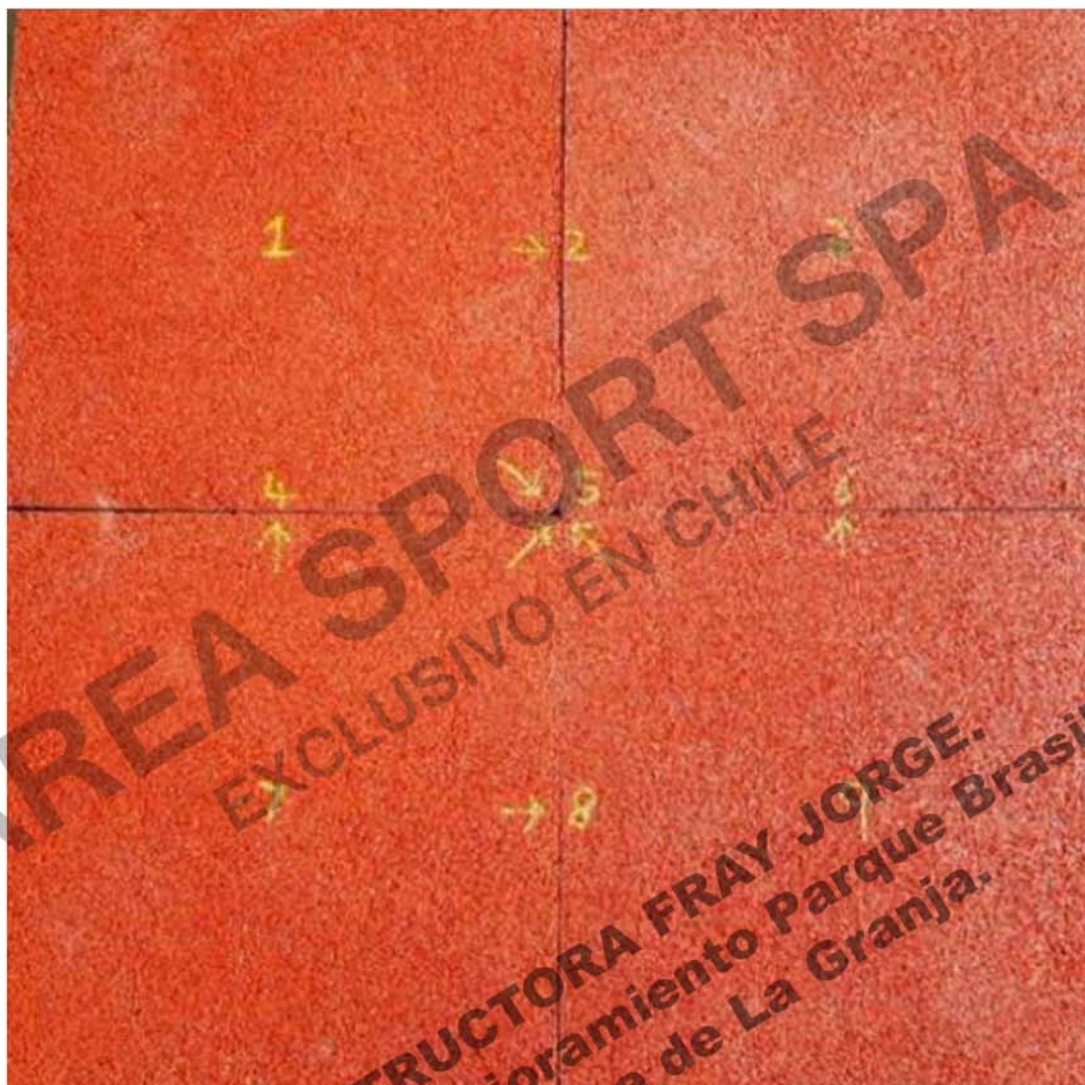
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Appendix A

Test position



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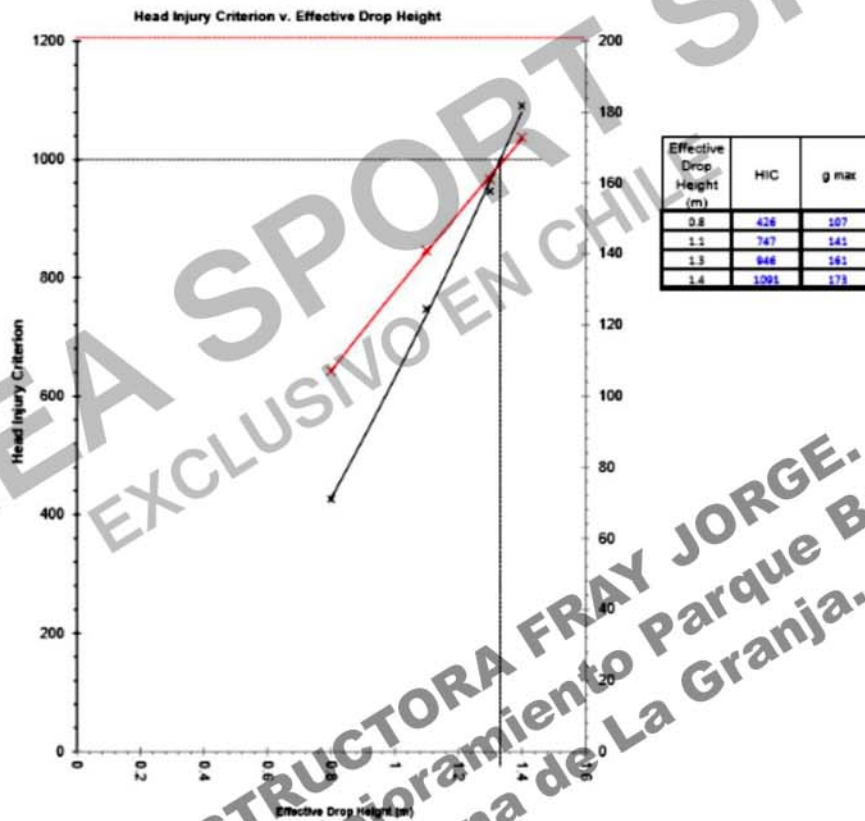
Appendix B

Graphs

Critical Height BS EN 1177:2018

SAMPLE: AP-0502
PRODUCT: 50mm surface

TESTED: 31.5.19



Arrangement: position 3
 Method of fixing: Loose laid on concrete
 Temperature: 33°C
 Tested by: KS

HIC = 1.32m
 Accelerometer S/no.: 3002
 European Standard headform

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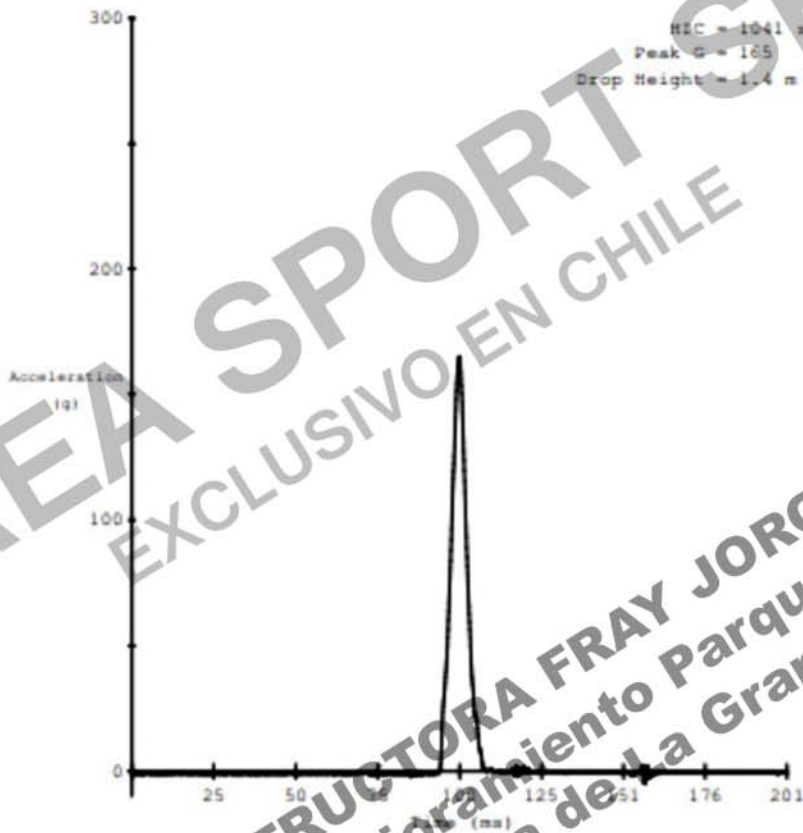
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SAMPLE : AP-0502
PRODUCT : PLAYGROUND

TESTED:31-05-19

Graph of Acceleration
v. Time



Arrangement :
 Method of fixing : MORTAR AND CONCRETE
 Temperature : 23
 Tested by : KAC

Accelerometer S/no. 3992
 European Standard headform
 Software Version 8.21.1

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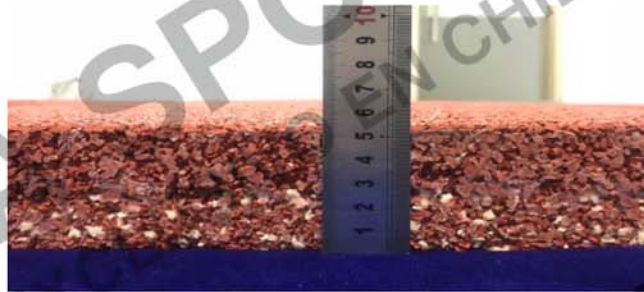
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Appendix C

Product photos



Top View



Cross View



Back View

*****End of report*****