REPORT NUMBER
QI1208164

PREPARED FOR
RUBBER-CAL INC.
3012 S. CRODDY WAY
SANTA ANA, CA 92704

ATTENTION
LUIS MACIAS

REPORT DATE
AUGUST 8, 2012
REPORTED / APPROVED BY:

TÜV SÜD America, Inc.

[Signature]

Reported by: Timothy Lockstein, Project Coordinator
CERTIFICATION TEST PROGRAMS

[Signature]

Approved by: Keith Shelton, Certification Manager
CERTIFICATION TEST PROGRAMS
PURPOSE

The purpose of this test report is to present the test results obtained during the performance of a test program. This report includes a brief description of the samples presented for test, a list of the documents presented as test instructions, and a summary of the testing performed and the results obtained. Applicable requirements and conclusions are based on the criteria provided by our client, or as specified in the reference document(s).

WORK REQUESTED / REFERENCE DOCUMENT(s)

ASTM F1292-09 – Impact Attenuation of Surfacing Materials within the Use Zone of Playground Equipment.

TEST SEQUENCE

Testing was performed on August 6, 2012 and August 7, 2012.

SAMPLE DESCRIPTION

Rubber-Cal Inc, submitted nine (9) rubber tiles 2.5 inches thick identified as Rubber Safety Surfacing Tile.
TESTING PERFORMED

IMPACT ATTENUATION

Procedure

Sample material was submitted for testing. A 2.5-inch thick sample: 18" x 18", was tested to determine the maximum critical fall height of the product at temperatures -6°C, 23°C, and 49°C. An impact test consists of three (3) impacts at the same impact site, at each temperature and height. Calculate the average HIC and G-max values using the second and third impact data.

Requirements

ASTM F1292-09, using an average of the last two (2) of three (3) impacts, no value shall exceed 200 G-max or 1000 HIC.

Conclusion

The Rubber Safety Surfacing Tiles met the requirements of ASTM F1292-09, at 6 feet.

SAMPLE DISPOSITION

The samples material will be retained by TÜV SÜD America for fifteen (15) days then disposed of at the discretion of TÜV SÜD America unless otherwise requested.
TEST EQUIPMENT

TÜV SÜD America, Inc.’s calibration system meets the requirements of ISO 17025:2005.

<table>
<thead>
<tr>
<th>TÜV ID</th>
<th>Description</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Calibration Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>System 2</td>
<td>Surface Impact Tester</td>
<td>Alpha Automation</td>
<td>Triax 2000</td>
<td>Verified prior to use</td>
</tr>
<tr>
<td>PLYP00036</td>
<td>Tri-axial accelerometer</td>
<td>Dytran</td>
<td>3014M2</td>
<td>03/13</td>
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<tr>
<td>PLYP00052</td>
<td>Reference Pad</td>
<td>Alpha Automation</td>
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<td>NCR</td>
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<tr>
<td>PLYP00082</td>
<td>Hemispherical Missile</td>
<td>Alpha Automation</td>
<td>Per figure 1</td>
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<tr>
<td>PLYP00065</td>
<td>Micro P Display</td>
<td>Unimeasure</td>
<td>MR-0-JR-2MV13</td>
<td>01/13</td>
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<tr>
<td>PLYP00066</td>
<td>Pancake Load Cell</td>
<td>Sensotec</td>
<td>BL114DL30A</td>
<td>01/13</td>
</tr>
<tr>
<td>PLYP00068</td>
<td>Digital Thermometer</td>
<td>Omega</td>
<td>HHII</td>
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</tr>
<tr>
<td>PLYP00084</td>
<td>Penetration Probe</td>
<td>Omega</td>
<td>88311</td>
<td>01/13</td>
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<tr>
<td>PLYP00080</td>
<td>Measurement Rod</td>
<td>Surveyors</td>
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<td>10/12</td>
</tr>
<tr>
<td>PLYP00069</td>
<td>Environmental Chamber</td>
<td>Russels</td>
<td>RB-8-1-1</td>
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<td>PLYP00101</td>
<td>Environmental Chamber</td>
<td>Thermotron</td>
<td>F-40-CHV-LN2</td>
<td>08/12</td>
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<tr>
<td>PLYP00071</td>
<td>Thermohygrometer</td>
<td>Extech Instruments</td>
<td>445702</td>
<td>01/13</td>
</tr>
</tbody>
</table>

NCR – No Calibration Required

APPENDICES:  Appendix A:  Test Data
Surfacing Material Report – ASTM F1292-09

Client: Rubber-Cal Inc.
Manufacturer: Rubber-Cal Inc.
 Manufacturing Location: 3012 South Croydy Way
 Santa Ana, CA 92704
Phone: 800.370.9152
Commercial Name of product: Rubber Safety Surfacing Tile
Date of Manufacture: Unknown
No. of samples submitted: 9 samples

Test Equipment:
- Triax System 1: Yes
- Triax System 2: No
- Accelerometer ID: PLYP00089
- Accelerometer Calibration Due Date: 6/1/2012
- Environmental Chamber No.: PLYP00101
- Calibration Due Date: 7/31/12
- Environmental Chamber No.: PLYP00069
- Calibration Due Date: 7/31/12

Loose fill Material Sample Description:
- Engineered Wood Fiber: No
- Loose Fill Wood: No
- Rubber: No
- Sand: No
- Gravel: No
- Other: No

Un-compacted Depth: Inches
Compacted Depth: Inches

Unitary Sample Description:
- Tiles: Yes
- Poured in Place: No
- Other: No

Total Thickness: 2.5
- Top Layer: N/A
- Base Layer: N/A

Comments:

The above described sample was tested at: 6 Ft.

The results reported herein reflect the performance of the above described samples at the time of testing and at the temperature(s) reported. The results are specific to the described samples. Samples of surfacing materials that do not closely match the described samples will perform differently. The following data sheet provides an accurate representation of the test results. Compliance with this Standard does not constitute product certification.

Sample in compliance with ASTM F1292-09 at the temperature and rating specified? Yes No
<table>
<thead>
<tr>
<th>Drop</th>
<th>Specified Impact Height (Ft.)</th>
<th>Reference Temperature -6°C, (21.2°F)</th>
<th>Reference Temperature 23°C,(73.4°F)</th>
<th>Reference Temperature 49°C,(120.2°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GMax</td>
<td>HIC</td>
<td>Velocity (ft/s)</td>
<td>GMax</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>158</td>
<td>892</td>
<td>19.6</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>158</td>
<td>897</td>
<td>19.7</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>156</td>
<td>879</td>
<td>19.7</td>
</tr>
<tr>
<td>Average</td>
<td>157</td>
<td>888</td>
<td>158</td>
<td>883</td>
</tr>
</tbody>
</table>

Measured Surface Temperature:
-6°C Max. Change from reference -3°C (-5.4°F) 23°C Max. Change from reference +3°C (+5.4°F) 49°C Max. Change from reference -3°C (-5.4°F)

Sample Condition: DRY

<table>
<thead>
<tr>
<th>Drop</th>
<th>One foot over (Ft.)</th>
<th>Reference Temperature -6°C, (21.2°F)</th>
<th>Reference Temperature 23°C,(73.4°F)</th>
<th>Reference Temperature 49°C,(120.2°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GMax</td>
<td>HIC</td>
<td>Velocity (ft/s)</td>
<td>GMax</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>168</td>
<td>1065</td>
<td>21.2</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>173</td>
<td>1123</td>
<td>21.2</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>176</td>
<td>1106</td>
<td>21.2</td>
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<tr>
<td>Average</td>
<td>174.5</td>
<td>1114.5</td>
<td>175.5</td>
<td>1088.5</td>
</tr>
</tbody>
</table>

Measured Surface Temperature:
-6°C Max. Change from reference -3°C (-5.4°F) 23°C Max. Change from reference +3°C (+5.4°F) 49°C Max. Change from reference -3°C (-5.4°F)

Sample Condition: DRY

<table>
<thead>
<tr>
<th>Drop</th>
<th>One foot under (Ft.)</th>
<th>Reference Temperature -6°C, (21.2°F)</th>
<th>Reference Temperature 23°C,(73.4°F)</th>
<th>Reference Temperature 49°C,(120.2°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GMax</td>
<td>HIC</td>
<td>Velocity (ft/s)</td>
<td>GMax</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>144</td>
<td>736</td>
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<td>2</td>
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<tr>
<td>3</td>
<td>5</td>
<td>140</td>
<td>687</td>
<td>18.0</td>
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<tr>
<td>Average</td>
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<td>691.5</td>
<td>137</td>
<td>645</td>
</tr>
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</table>

Measured Surface Temperature:
-6°C Max. Change from reference -3°C (-5.4°F) 23°C Max. Change from reference +3°C (+5.4°F) 49°C Max. Change from reference -3°C (-5.4°F)

Sample Condition: DRY