

## Test Report

No.: SHHL1906032867BM

Date: JUL. 02, 2019

Page: 1 of 5

ZHANGJIAGANG REFINE UNION IMPORT AND EXPORT CO., LTD  
ROOM 708A, HUAJIAN BUILDING, WEST SHAZHOU ROAD, ZHANGJIAGANG CITY, JIANGSU  
PROVINCE, CHINA

Sample Description : SPC FLOORING  
\*\*\*\*\*  
Sample Receiving Date : JUN. 24, 2019  
Testing Period : JUN. 24, 2019 TO JUL. 02, 2019  
Testing Location : 3RD BUILDING, LANE 3999, XIUPU ROAD, PUDONG  
NEW AREA, SHANGHAI  
Test Performed : SELECTED TEST(S) AS REQUESTED BY APPLICANT  
Test Requested : SLIP RESISTANCE (DIN 51130:2014-02)  
Test Result(s) : FOR FURTHER DETAILS, PLEASE REFER TO THE  
FOLLOWING PAGE(S)  
Conclusion : THE TEST DATA WERE PROVIDED TO CLIENT FOR  
THEIR OWN ANALYSIS.

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.




Yomoro Gu  
Authorized Signatory

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SHHL 148037



**Test Conducted:**
**Slip resistance (DIN 51130:2014-02)**

Test Property	Test procedure/requirements	Rating/Result
SLIP RESISTANCE	<p>Prepare the test sample as the size of 100cm x 50cm, cleaning the surface before test.</p> <p>The temperature of the lab, shoes, lubricant and the decorative panels should be kept at <math>(23 \pm 5) ^\circ\text{C}</math></p> <p>Before test, apply a layer of lubricant on the surface of the decorative panels evenly with a brush, the density should be <math>(200 \pm 20)</math> ml every square meter, the outer bottom of the shoes should also be covered with lubricant.</p> <div data-bbox="632 924 1121 1130" data-label="Image"> </div> <p style="text-align: center;"><b>Illustration 1—bottom of the shoes for inspect</b></p> <p>Inspector should maintain upright posture and walk forward and backward on the decorative panels while watch below, stride width should reach half the length of the shoes. Start from the horizontality, increase the angle of inclination of the panels at a angular velocity of about one degree every second. Inspector will linger at critical areas many times to determine the reliable walk limit inclination angle he or she can reached, repeat the above procedure three times and start from the horizontality every time. Before the second and the third time, reapply the lubricant on the surface as above with the brush.</p> <p><b>1. Calibration of the test person</b></p> <p>1. Each inspectors should walk on the every standard flooring for three times, then calculate the average angle respectively:</p> <p>① <math>\alpha_{\text{ST-1}}</math> ② <math>\alpha_{\text{ST-2}}</math> ③ <math>\alpha_{\text{ST-3}}</math></p> <p>2. The difference value will be calculated: <math>\Delta\alpha_{\text{ST-1}}</math>, <math>\Delta\alpha_{\text{ST-2}}</math>, <math>\Delta\alpha_{\text{ST-3}}</math>. If the difference value is out of range of CrD95, the inspector should be eliminated</p>	<p><math>\alpha</math>: 11.6°</p> <p>Rating: R 10</p>



Test Property	Test procedure/requirements	Rating/Result																									
	<p>See below table 1</p> <p style="text-align: center;"><b>Table 1</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3">Standard flooring</th> </tr> <tr> <th>i</th> <th><math>\alpha_{S,i}</math></th> <th>CrD95</th> </tr> </thead> <tbody> <tr> <td>St-I</td> <td>8.7°</td> <td>3.0°</td> </tr> <tr> <td>St-II</td> <td>17.3°</td> <td>3.0°</td> </tr> <tr> <td>St-III A</td> <td>27.3°</td> <td>3.0°</td> </tr> </tbody> </table> <p><b>2. Test for sample</b></p> <p>Two qualified inspector selected as above walk on the sample panels for three times respectively, then calculate the mean value <math>\alpha_{0,1}</math> and <math>\alpha_{0,2}</math>, then calculate the corrected value <math>D_j</math> according to below table 2..</p> <p style="text-align: center;"><b>Table 2</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Case</th> <th>Corrected value <math>D_j</math></th> </tr> </thead> <tbody> <tr> <td><math>\alpha_{0,1} &lt; \alpha_{K,St-I,1}</math></td> <td><math>D_1 = \Delta\alpha_{St-I,1} \frac{1}{\sqrt{2}}</math></td> </tr> <tr> <td><math>\alpha_{K,St-I,1} \leq \alpha_{0,1} &lt; \alpha_{K,St-II,1}</math></td> <td><math>D_1 = \left[ \Delta\alpha_{St-I,1} + (\Delta\alpha_{St-II,1} - \Delta\alpha_{St-I,1}) \frac{\alpha_{0,1} - \alpha_{K,St-I,1}}{\alpha_{K,St-II,1} - \alpha_{K,St-I,1}} \right] \frac{1}{\sqrt{2}}</math></td> </tr> <tr> <td><math>\alpha_{K,St-II,1} \leq \alpha_{0,1} &lt; \alpha_{K,St-III A,1}</math></td> <td><math>D_1 = \left[ \Delta\alpha_{St-II,1} + (\Delta\alpha_{St-III A,1} - \Delta\alpha_{St-II,1}) \frac{\alpha_{0,1} - \alpha_{K,St-II,1}}{\alpha_{K,St-III A,1} - \alpha_{K,St-II,1}} \right] \frac{1}{\sqrt{2}}</math></td> </tr> <tr> <td><math>\alpha_{K,St-III A,1} \leq \alpha_{0,1}</math></td> <td><math>D_1 = \Delta\alpha_{St-III A,1} \frac{1}{\sqrt{2}}</math></td> </tr> </tbody> </table> <p>The result for inspector j: <math>\alpha_j = \alpha_{0,j} + D_j</math></p> <p>The final result for the two inspectors: <math>\alpha = (\alpha_1 + \alpha_2) / 2</math>, on this basis and according to table 3, give a final rating of slip resistance.</p>	Standard flooring			i	$\alpha_{S,i}$	CrD95	St-I	8.7°	3.0°	St-II	17.3°	3.0°	St-III A	27.3°	3.0°	Case	Corrected value $D_j$	$\alpha_{0,1} < \alpha_{K,St-I,1}$	$D_1 = \Delta\alpha_{St-I,1} \frac{1}{\sqrt{2}}$	$\alpha_{K,St-I,1} \leq \alpha_{0,1} < \alpha_{K,St-II,1}$	$D_1 = \left[ \Delta\alpha_{St-I,1} + (\Delta\alpha_{St-II,1} - \Delta\alpha_{St-I,1}) \frac{\alpha_{0,1} - \alpha_{K,St-I,1}}{\alpha_{K,St-II,1} - \alpha_{K,St-I,1}} \right] \frac{1}{\sqrt{2}}$	$\alpha_{K,St-II,1} \leq \alpha_{0,1} < \alpha_{K,St-III A,1}$	$D_1 = \left[ \Delta\alpha_{St-II,1} + (\Delta\alpha_{St-III A,1} - \Delta\alpha_{St-II,1}) \frac{\alpha_{0,1} - \alpha_{K,St-II,1}}{\alpha_{K,St-III A,1} - \alpha_{K,St-II,1}} \right] \frac{1}{\sqrt{2}}$	$\alpha_{K,St-III A,1} \leq \alpha_{0,1}$	$D_1 = \Delta\alpha_{St-III A,1} \frac{1}{\sqrt{2}}$	
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Test Property	Test procedure/requirements	Rating/Result												
	<p><b>Table3 –The relation between the corrected overall angle and the rating of the slip resistance</b></p> <table border="1"> <thead> <tr> <th><math>\alpha</math></th> <th>Rating</th> </tr> </thead> <tbody> <tr> <td><math>6^\circ &lt; \alpha \leq 10^\circ</math></td> <td>R 9</td> </tr> <tr> <td><math>10^\circ &lt; \alpha \leq 19^\circ</math></td> <td>R 10</td> </tr> <tr> <td><math>19^\circ &lt; \alpha \leq 27^\circ</math></td> <td>R 11</td> </tr> <tr> <td><math>27^\circ &lt; \alpha \leq 35^\circ</math></td> <td>R 12</td> </tr> <tr> <td><math>\alpha &gt; 35^\circ</math></td> <td>R 13</td> </tr> </tbody> </table> <p><b>Illustration 2 inspect device with safety mechanism (inclined plane)</b></p>	$\alpha$	Rating	$6^\circ < \alpha \leq 10^\circ$	R 9	$10^\circ < \alpha \leq 19^\circ$	R 10	$19^\circ < \alpha \leq 27^\circ$	R 11	$27^\circ < \alpha \leq 35^\circ$	R 12	$\alpha > 35^\circ$	R 13	
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### Remark:

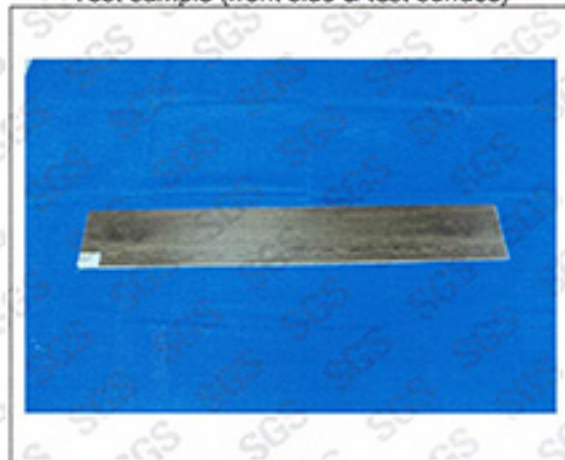
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**SHHL 148040**

Sample Photo:

Test sample (front side & test surface)



Standard floor

Test sample (back side)



Test shoe



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\*\*\*End of Report\*\*\*

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