

Date
11 augustus 2008

Project number
T08.16794

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Results of the TNO method

| | Coefficient of dynamic friction (μ) | |
|--|---|-----------------|
| | Dry | Wet |
| Floor tile untreated | 0.72 \pm 0.02 | 0.46 \pm 0.02 |
| Floor tile treated with the antiSLIP system® | 0.83 \pm 0.02 | 0.60 \pm 0.02 |

Results of the EN 13893 method

| | Coefficient of dynamic friction (μ) | |
|--|---|-----------------|
| | Dry | We |
| Floor tile untreated | 0.61 \pm 0.03 | 0.39 \pm 0.02 |
| Floor tile treated with the antiSLIP system® | 0.66 \pm 0.3 | 0.47 \pm 0.02 |

Remark: The coefficient of dynamic friction is expressed in a value between 0 and 1. 0 indicates an extremely smooth surface, 1 indicates a very resistant surface.

Conclusion

The application of the anti-slip product, antiSLIP system®, has a positive influence on the coefficient of dynamic friction, the surface becomes clearly more resistant as a result of this treatment.

TNO TQS
Author
J. Brinks

Approved by:
H. Weustink MEng

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Test set-up TNO method

The resistance is determined with the aid of a dynamometer. In order to be able to produce a horizontal movement a pulley fixed to the floor underneath has been used. The pulling body is 6x11cm and can be fitted with various sole materials. For this test a sole material has been chosen which is used in determining the abrasion resistance of floor covering in accordance with EN 1963. This is a standardised product, the surface consists of a corrugated profile of a limited depth.

In the table below the properties of the sole material are displayed.

| Type of sole material, profiled rubber | | |
|--|---------|-----------|
| Hardness | shore A | 90 ±3 |
| Thickness | mm | 2.5 ±0.3 |
| Corrugation length | mm | 13.0 ±0.5 |
| Amplitude | mm | 2.0 ±0.3 |
| Profile depth | mm | 0.6 ±0.1 |

In order to determine the resistance the ceramic tiles have been placed horizontally with the longest side in front of the dynamometer. The horizontal movement is lead to the force transducer via an inextensible wire and the pulley. During the pull the force is registered. In total a distance of 30cm is covered.

| Characteristic | Description |
|---|-------------|
| Dynamometer | Zwick |
| Force transducer | 1000N |
| Speed | 400 mm/min |
| Covered distance | 30 cm |
| Number of measurements per type of ceramic tile | 4 |

EN 13893 method

This method is used to determine the resistance of floor covering. Under the device three gliders have been attached. Before the test can be started a metal band is pulled from the device which is fixed to the ground with a plate. During the measurement the device with the gliders moves to the fixed point. The resistance can be read directly.

TNO Quality Services BV

Return address: Postbus 337, 7500 AH ENSCHEDE

FSI International BV
F.A.O. Mr. R. van der Wolf
Edisonstraat 15
2723 RS ZOETERMEER
The Netherlands

TNO Quality Services BV
Ariënsplein 3
7511 JX Enschede

Postal address:
Postbus 337
7500 AH Enschede

Parking and deliveries:
Van Galenstraat 21
7511 JL Enschede

www.tno-quality.com

T 053 486 04 86
F 053 486 04 87

jan.brinks@quality.tno.nl

Report

Project number: T08.16794

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11 August 2008

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Received Two ceramic floor tiles
Dimensions: approx. 40 x 80 cm.

Telephone client
079-3434670

Fax client
079-3434114

Remark: the client has treated one tile with
an anti-slip product, antiSLIP system® .

Reference client

Instruction To determine the coefficient of dynamic friction
according to the:
- internal TNO method and
- EN 13893.

Item
Anti-slip

Number of appendices
0

To evaluate the results.

Test date 6 and 7 May 2008

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Limitations

- It concerns a one-off investigation
- TNO Quality cannot give a verdict on the representativeness of the samples supplied
- This report cannot give a verdict on any batches supplied to the market.