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Method Statement of Determination of Static Coefficient of Friction

1 Scope

1.1 This test method covers the measurement of static coefficient of friction of ceramic tile under both wet and dry conditions while utilizing Neolite Heel Assemblies. This test method can be used in the laboratory or in the field.

2 Reference

2.1 The test was carried out in accordance with ASTM C1028 – 96

3 Equipment

3.1 Dynamometer Pull Meter

3.2 Weight (22 kg)

3.3 Two numbers of Standard Neolite Heel Assemblies, one to be used for each of the wet and dry conditions.

3.4 Two assemblies made of approximately 19mm thick and 203mm square wood block with 76mm by 76mm. Neolite material attached.

3.5 Standard Tile.

3.6 400 Grit Silicon Carbide Paper.

3.7 Renovator.

3.8 Rags, Sponge, or Paper Towels.

3.9 Distilled Water.

4 Preparation

4.1 Sheen must be removed from the Neolite surface prior to use. To prepare the assembly surface prior to its initial use, place a sheet of 400 grit wet or dry silicon carbide paper on a flat surface. Sand Neolite material gently by moving the assembly back and forth four times for a distance of about 102mm. Repeat at an angle of 90°. This constitutes one cycle of surface preparation. This procedure is to be repeated for a total of 10 cycles.

5 Calibration

5.1 For Dry Condition

5.1.1 Because many variables are associated with this test procedure, it is important that the operator calibrates the Neolite Heel Assemble surface with the Standard Tile each time the test is performed.

5.1.2 For uses other than the initial use, resurface the assembly with 400 grit wet or dry silicon carbide paper, four cycles.

5.1.3 Determine the total weight, W, of the 22kg weight plus the Neolite Heel Assembly.

5.1.4 Clean the Standard Tile with Renovator.

5.1.5 Place the Neolite Heel Assembly and the 22kg weight on the Standard Tile surface. Using a dynamometer, determine the force required to set the test assembly in motion. Record the maximum force of the reading.

5.1.6 Make a total of four pulls, each perpendicular to the previous pull.

5.1.7 Calculate the dry calibration factor as follows:

$$X_D = 0.71 - \frac{R_D}{NW}$$

Where:

X_D = dry calibration factor.

R_D = sum of the four recorded dry force reading, kg.

N = 4, number of pulls

W = weigh of heel assembly plus 22kg weight, kg.

5.2 For Wet Condition

5.2.1 It is important that the operator calibrates the assembly surface each time the test is performed. Repeat the procedure in Clause 5.1.2 to 5.1.5 with one exception : Saturate the surface with distilled water and repeat the calibration with the surface wet, keeping the surface saturated.

5.2.2 Calculate the wet calibration factor as follows:

$$X_W = 0.47 - \frac{R_W}{NW}$$

where:

X_W = wet calibration factor,

R_W = sum of the four recorded wet force readings, (kg).

N = 4, number of pulls

W = weight of heel assembly plus 22-kg weight, (kg).

6 Test Procedure

6.1 For Dry Condition

6.1.1 Test the following surfaces:

6.1.1.1 The test area or separate test specimens shall not be less than 102 by 102 mm. Bond the separate test specimens of small-sized tile, such as 25 by 25 mm and 51 by 51 mm to a suitable surface to provide the 102 by 102mm. or larger size.

6.1.1.2 Test the surface in the as-received condition.

6.1.2 To prepare the heel assembly surface, prior to adding the 22-kg weight, resurface with 400 grit wet or dry silicon carbide paper on a flat surface for one cycle.

6.1.3 Resurface the heel assembly after each tile or surface area to be tested.

6.1.4 Place the 22-kg weight assembly with Neolite material attached on the test surface. Using a dynamometer, determine the force required to set the test assembly in motion. Record the maximum force of the reading.

6.1.5 Four pulls perpendicular to the previous pull on each of three surface areas or three test specimens constitute the twelve necessary readings to calculate the static coefficient of friction.

6.1.6 Record all readings.

6.2 For Wet Condition

6.2.1 Repeat the procedure in Clause 6.1.2 and 6.1.5 with one exception. Saturate the surface with distilled water and repeat the test with the surface wet, keeping the surface saturated.

6.2.2 Record all readings.

6.3 For using prepared test specimens.

6.3.1 Test the prepared test specimens both wet and dry, after cleaning the test specimens with Renovator.

7 Calculation

7.1 Calculate the static coefficient of friction as follows:

7.1.1 For dry condition :

$$F_D = (R_D/NW) + X_D$$

7.1.2 For wet condition :

$$F_W = (R_W/NW) + X_W$$

Where:

F_D = static coefficient of friction for dry surface,

F_W = static coefficient of friction for wet surface,

R_D = total of the 12 dry force readings, kg.

R_W = total of the 12 wet force readings, kg.

N = 12, number of pulls

X_D = dry calibration factor,

X_W = wet calibration factor,

W = total weight of the heel assembly plus 22-kg weight, kg.

8 Report

8.1 The report shall contain the following information:

8.1.1 Name of Customer

8.1.2 Customer Address

8.1.3 Project Name

8.1.4 Location of Test

8.1.5 Identity of sample, such as product name, color, manufacturer, source of origin. (If requested)

8.1.6 The individual and average static coefficient of friction for :

8.1.6.1 Dry surfaces (both as-received and after cleaning) and

8.1.6.2 Wet surfaces (both as-received and after cleaning).