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Resilient floor coverings — Determination of density

Revêtements de sol résilients — Détermination de la masse volumique

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Foreword

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ISO 23996 was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

Resilient floor coverings — Determination of density

1 Scope

This International Standard describes two methods for determining the density of homogeneous resilient floor coverings and solid layers of other resilient floor coverings.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 24342, *Resilient and textile floor-coverings — Determination of side length, edge straightness and squareness of tiles*

ISO 24346, *Resilient floor coverings — Determination of overall thickness*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
density
quotient of mass divided by volume

4 Sampling

Take three tiles or a sample of at least 1 000 mm × 1 000 mm for sheet material.

5 Atmosphere for conditioning and testing

Condition the samples at a temperature of (23 ± 2) °C and a relative humidity of (50 ± 5) % for a minimum of 24 h. Maintain these conditions when conducting the test.

6 Method A

6.1 Principle

A test piece of known mass is immersed in a liquid and reweighed, and its density is calculated.

6.2 Apparatus

6.2.1 Balance, with a sensitivity of 1 mg.

6.2.2 Pad straddle, or other stationary support.

6.2.3 Beaker, of 200 ml capacity.

6.2.4 Thin wire, of maximum diameter 0,125 mm.

6.2.5 Freshly distilled water, containing not more than 0,1 % of wetting agent (to help in removing air bubbles) at a temperature of (23 ± 2) °C.

6.3 Selection of specimens

Take three test specimens at equal distances from the sample, the distance between the outer edge of the sample and the nearest edge of the test piece being at least 100 mm, or from individual tiles. Each test specimen should have minimum dimensions of 30 mm × 30 mm or a diameter of 36 mm.

6.4 Test procedure

Weigh the test specimen with the thin wire suspended around it. Record the mass, m_1. Immerse the test specimen, still suspended by the wire, in the distilled water contained in the beaker on the pan straddle or other stationary support. Remove adhering bubbles with a fine wire. Mark the level of immersion and record the mass of the immersed test specimen, m_2. Immerse the remaining test specimen at the same level.

6.5 Calculation and expression of results

Calculate the density, ρ, in kilograms per cubic metre, of the test specimen from the following equation:

$$\rho = (m_1 \times \rho H_2O)/(m_1 - m_2)$$

where

m_1 is the initial weight of the test specimen, in kilograms;

m_2 is the weight of the immersed test specimen, in kilograms;

ρH_2O is the density of water, at the temperature specified in 6.2.5, in kilograms per cubic metre.

Calculate the mean result for the three test specimens and express the result to the nearest 1 kg/m^3.

6.6 Precision statement

A round-robin test will be conducted to determine the precision of this method.

7 Method B

7.1 Principle

A test piece of known dimensions is weighed and its density calculated from the quotient of mass and volume. This method cannot be used if the surface and/or back side has a texture.