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Standards

Irish Standard  
I.S. EN 15803:2009

# Conservation of cultural property - Test methods - Determination of water vapour permeability ( $\delta_p$ )

## I.S. EN 15803:2009

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English Version

## Conservation of cultural property - Test methods - Determination of water vapour permeability ( $\delta_p$ )

Conservation des biens culturels - Méthodes d'essai -  
Détermination de la perméabilité à la vapeur d'eau ( $\delta_p$ )

Erhaltung des kulturellen Erbes - Prüfverfahren -  
Bestimmung des Wasserdampfleitkoeffizienten ( $\delta_p$ )

This European Standard was approved by CEN on 7 November 2009.

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<b>Contents</b>	<b>Page</b>
Foreword.....	3
Introduction .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	5
4 Principle.....	6
5 Symbols and abbreviations .....	6
6 Test equipment .....	7
7 Preparation of test specimens .....	10
7.1 Number and dimensions of test specimens .....	10
8 Test procedure .....	10
8.1 General.....	10
8.2 Test environmental conditions.....	10
8.3 Procedure .....	11
9 Expression of results .....	11
9.1 Cumulative mass change and density of water vapour flow rate.....	11
9.2 Water vapour permeance.....	12
9.3 Water vapour permeability.....	12
9.4 Water vapour diffusion resistance coefficient.....	12
9.5 Water vapour diffusion-equivalent air layer thickness.....	12
10 Test report .....	12
Bibliography .....	14

## **Foreword**

This document (EN 15803:2009) has been prepared by Technical Committee CEN/TC 346 “Conservation of cultural property”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2010 and conflicting national standards shall be withdrawn at the latest by June 2010.

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## **Introduction**

This test method can be applied if it does not change the value of the cultural property and follows relevant ethical codes of conservation practice.

## 1 Scope

This European Standard specifies a method for determining the water vapour permeability (WVP) of porous inorganic materials used for and constituting cultural property. The method may be applied to porous inorganic materials either untreated or subjected to any treatment or ageing.

## 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.

prEN 15898:2009, *Conservation of cultural property — Main general terms and definitions concerning conservation of cultural property*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 15898:2009 and the following apply.

### 3.1

#### **porous inorganic materials**

materials including natural stones, e.g. sandstone, limestone, marble, as well as artificial materials, such as mortar, plaster, brick and others

### 3.2

#### **water vapour flow rate**

**G**

mass of water vapour transferred through the specimen per time

### 3.3

#### **density of water vapour flow rate**

#### **vapour transmission rate**

**g**

mass of water vapour transferred through the specimen per time and per unit area

### 3.4

#### **water vapour permeance**

**W<sub>p</sub>**

value of the mass of water vapour diffused through a specimen, induced by a partial vapour pressure gradient through the specimen, per unit area, time and partial vapour pressure difference

### 3.5

#### **water vapour permeability**

**δ<sub>p</sub>**

product of the water vapour permeance and the thickness of a homogeneous specimen

### 3.6

#### **water vapour permeability of air**

**δ<sub>a</sub>**

water vapour permeability of air δ<sub>a</sub> is defined by the Schirmer equation:

$$\delta_a = 0,000\ 023\ 1 (p_o/(p \times R \times T)) \times (T/273\ K)^{1,81} \text{ kg}/(\text{m}\cdot\text{s}\cdot\text{Pa}) \quad (1)$$

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