
Irish Standard
I.S. EN ISO 7783:2011

# Paints and varnishes - Determination of water-vapour transmission properties - Cup method (ISO 7783:2011)

# I.S. EN ISO 7783:2011

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English Version

## Paints and varnishes - Determination of water-vapour transmission properties - Cup method (ISO 7783:2011)

Peintures et vernis - Détermination des propriétés de transmission de la vapeur d'eau - Méthode de la coupelle (ISO 7783:2011)

Beschichtungsstoffe - Bestimmung der Wasserdampfdurchlässigkeit - Schalenverfahren (ISO 7783:2011)

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# Foreword

This document (EN ISO 7783:2011) has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" in collaboration with Technical Committee CEN/TC 139 “Paints and varnishes” the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2012, and conflicting national standards shall be withdrawn at the latest by May 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 7783-1:1999, EN ISO 7783-2:1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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The text of ISO 7783:2011 has been approved by CEN as a EN ISO 7783:2011 without any modification.

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I.S. EN ISO 7783:2011

INTERNATIONAL STANDARD

**ISO 7783**

First edition
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# Paints and varnishes — Determination of water-vapour transmission properties — Cup method

*Peintures et vernis — Détermination des propriétés de transmission de la vapeur d'eau — Méthode de la coupelle*

Reference number
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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 7783 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This first edition of ISO 7783 cancels and replaces ISO 7783-1:1996 and ISO 7783-2:1999, which have been merged and technically revised. It also incorporates the Technical Corrigendum ISO 7783-1:1996/Cor.1:1998.

# Introduction

ISO 7783 is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products. It describes a method for determining the water-vapour transmission rate of self-supporting and non-self-supporting coatings.

The water-vapour transmission rate is not necessarily a linear function of film thickness, temperature or relative-humidity difference. A determination carried out under one set of conditions will not necessarily be comparable with one carried out under other conditions. Therefore, it is essential that the conditions of test are chosen to be as close as possible to the conditions of use.

Water-vapour transmission is of greatest interest under conditions of high humidity. For this reason, the wet-cup method has been adopted as the reference method. By agreement, other procedures and conditions, like the dry-cup method, may be used.

# Paints and varnishes — Determination of water-vapour transmission properties — Cup method

## 1 Scope

This International Standard specifies a method for determining the water-vapour transmission properties of coatings of paints, varnishes and related products.

It supplements ISO 12572. As far as possible, the procedure, the definitions and the calculations have been taken over from ISO 12572. It is recommended that ISO 12572 be consulted, if necessary, to obtain a better understanding of the procedure specified in this International Standard.

Water-vapour transmission rates of more than 680 g/(m$^2$·d) (i.e. water-vapour diffusion-equivalent air layer thicknesses, $s_d$, of less than 0,03 m) will not be accurately quantified by the test method described in this International Standard.

## 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 1513, *Paints and varnishes — Examination and preparation of test samples*

ISO 2808, *Paints and varnishes — Determination of film thickness*

ISO 3233, *Paints and varnishes — Determination of percentage volume of non-volatile matter by measuring the density of a dried coating*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

## 3 Terms and definitions

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

**3.1**
**water-vapour transmission rate**
$V$
mass of water vapour that is transmitted over a given period through a given surface area of a test piece under specified constant conditions of relative humidity at each face of the test piece

NOTE 1 It is measured in grams per square metre per day [g/(m$^2$·d)].

NOTE 2 A water-vapour transmission rate measured at atmospheric pressure, $p$, can be converted to the equivalent value at standard atmospheric pressure, $p_0$, by multiplying by $p/p_0$. This allows a linear correlation with the water-vapour diffusion-equivalent air layer thickness ($s_d$) value (see 3.3) by the factor 20,4.

NOTE 3 The term “water-vapour transmission” is often incorrectly used for water-vapour transmission rate.