

**Paints and varnishes - Determination of density - Part 2:
Immersed body (plummet) method (ISO 2811-2:2011)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 2811-2:2011 sisaldab Euroopa standardi EN ISO 2811-2:2011 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 2811-2:2011 consists of the English text of the European standard EN ISO 2811-2:2011.
Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kätesaadavaks tegemise kuupäev on 01.03.2011.	Date of Availability of the European standard text 01.03.2011.
Standard on kätesaadav Eesti standardiorganisatsionist.	The standard is available from Estonian standardisation organisation.

ICS 87.040

density (mass/volume), density measurement, determination, paints, tests, varnishes

Standardite reproduutseerimis- ja levitamisõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Estonia; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: 605 5050; E-mail: info@evs.ee

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 2811-2

March 2011

ICS 87.040

Supersedes EN ISO 2811-2:2001

English Version

Paints and varnishes - Determination of density - Part 2:
Immersed body (plummet) method (ISO 2811-2:2011)

Peintures et vernis - Détermination de la masse volumique
- Partie 2: Méthode par immersion d'un corps (plongeur)
(ISO 2811-2:2011)

Beschichtungsstoffe - Bestimmung der Dichte - Teil 2:
Tauchkörper-Verfahren (ISO 2811-2:2011)

This European Standard was approved by CEN on 19 February 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 2811-2:2011) 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 September 2011, and conflicting national standards shall be withdrawn at the latest by September 2011.

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 2811-2:2001.

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.

Endorsement notice

The text of ISO 2811-2:2011 has been approved by CEN as a EN ISO 2811-2:2011 without any modification.

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Temperature	1
6 Apparatus	2
7 Sampling	3
8 Procedure	3
8.1 General	3
8.2 Determination	3
9 Calculation	4
10 Precision	5
10.1 General	5
10.2 Repeatability limit, r	5
10.3 Reproducibility limit, R	5
11 Test report	5
Annex A (informative) Example of a calibration method	7
Annex B (informative) Temperature variation	8

Paints and varnishes — Determination of density —

Part 2: Immersed body (plummet) method

1 Scope

This part of ISO 2811 specifies a method for determining the density of paints, varnishes and related products, using balls or other round bodies as immersion bodies (plummets).

The method is limited to materials of low or medium viscosity, and is particularly suitable for production control.

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 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 density

ρ
mass divided by the volume of a portion of a material

NOTE It is expressed in grams per cubic centimetre.

4 Principle

The method is based on Archimedes' principle. A container is filled with the product under test and placed on the analytical balance. The plummet is attached to a tripod and is immersed in the product under test. The density is calculated from the balance readings before the plummet is immersed in the material under test and after it is immersed.

5 Temperature

The effect of temperature on density is highly significant with respect to filling properties, and varies with the type of product.