Paints and varnishes - Determination of percentage volume ofnon-volatile matter by measuring the non-volatile matter contentand the density of the coating material, and calculation of thetheoretical spreading rate

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 23811:2009 sisaldab Euroopa standardi EN ISO 23811:2009 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 23811:2009 consists of the English text of the European standard EN ISO 23811:2009.
Standard on kinnitatud Eesti Standardikeskuse 27.03.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 27.03.2009 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 kättesaadavaks tegemise kuupäev on 15.02.2009.	Date of Availability of the European standard text 15.02.2009.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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Võtmesõnad:

EUROPEAN STANDARD

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English Version

Paints and varnishes - Determination of percentage volume of non-volatile matter by measuring the non-volatile matter content and the density of the coating material, and calculation of the theoretical spreading rate (ISO 23811:2009)

Peintures et vernis - Détermination du pourcentage en volume de matières non volatiles par mesurage de la teneur en matières non volatiles et de la masse volumique d'un produit de peinture et calcul du rendement d'application théorique (ISO 23811:2009)

Beschichtungsstoffe - Bestimmung des Volumens nichtflüchtiger Anteile durch Messen des Gehaltes an nichtflüchtigen Anteilen und der Dichte des Beschichtungsstoffes, und Berechnung der theoretischen Ergiebigkeit (ISO 23811:2009)

This European Standard was approved by CEN on 3 January 2009.

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

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Foreword

This document (EN ISO 23811:2009) 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 August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

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Endorsement notice

The text of ISO 23811:2009 has been approved by CEN as a EN ISO 23811:2009 without any modification.

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Introduction

This method is used to determine the volume of the dry coating obtainable using a coating material by calculation of the percentage volume of non-volatile matter. The value obtained by this method might not be the same as that measured or calculated by adding together the masses and volumes of the raw materials in a formulation. The volume occupied by a combination of resin and solvent might be the same as, greater than or less than the combined volume of the separate components, since contraction or expansion of resin and the solvent can occur. A second factor affecting the volume of a dry coating is the degree to which the spaces between pigment particles are filled with binder. A third factor is the use of volatile components in reactive systems that, by their reaction, change into non-volatile film-building materials, i.e. amines and reactive solvents in high-build two-component coating materials.

Above and close to the critical pigment volume concentration, the volume of a dry paint film is greater than the theoretical volume, due to an increase in unfilled voids between pigment particles. The porosity of the film means that this method is unsuitable.

Another method for determination of the percentage volume of non-volatile matter is described in ISO 3233. The method described in ISO 23811 is a quick method which needs only the results of the non-volatile matter and the density of the coating material and the density of the solvents for the calculation. The precision of the method depends mainly on the determination of the non-volatile matter content and the unknown densities. But the precision of the combination of measurements and calculation is better than the precision of pure calculation methods with no measurements. The simple practical method is often used in the automotive industry, especially for commercial vehicles.

The method described in ISO 23811 differs from the methods described in ASTM D 2697 and Section 5.5 of ASTM D 5201-05a and gives different results.

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1 Scope

This International Standard specifies a simple practical method for calculating the non-volatile matter by volume, NV_V, of a coating material from the non-volatile-matter content, NV, the density of the coating material and the density of the solvents. Using the non-volatile matter by volume results and the density obtained in accordance with this International Standard, it is possible to calculate the theoretical spreading rate of a coating material.

This International Standard is not applicable to coating materials which exceed the critical pigment volume concentration (CPVC).

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 2811-1, *Paints and varnishes — Determination of density — Part 1: Pyknometer method*

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

ISO 2811-3, *Paints and varnishes — Determination of density — Part 3: Oscillation method*

ISO 2811-4, *Paints and varnishes — Determination of density — Part 4: Pressure cup method*

ISO 3251, *Paints, varnishes and plastics — Determination of non-volatile-matter content*