



SLOVENSKI STANDARD SIST EN ISO 2431:2012

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Nadomešča:

SIST EN ISO 2431:1997

SIST EN ISO 2431:1997/AC:2002

Barve in laki - Ugotavljanje iztočnega časa z uporabo iztočnih čaš (ISO 2431:2011)

Paints and varnishes - Determination of flow time by use of flow cups (ISO 2431:2011)

Beschichtungsstoffe - Bestimmung der Auslaufzeit mit Auslaufbechern (ISO 2431:2011)

Peintures et vernis - Détermination du temps d'écoulement au moyen de coupes d'écoulement (ISO 2431:2011)

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87.040

Barve in laki

Paints and varnishes

SIST EN ISO 2431:2012

en,fr

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 2431

November 2011

ICS 87.040

Supersedes EN ISO 2431:1996

English Version

Paints and varnishes - Determination of flow time by use of flow cups (ISO 2431:2011)

Peintures et vernis - Détermination du temps d'écoulement
au moyen de coupes d'écoulement (ISO 2431:2011)

Beschichtungsstoffe - Bestimmung der Auslaufzeit mit
Auslaufbechern (ISO 2431:2011)

This European Standard was approved by CEN on 26 November 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.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 2431:2011) 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 2431:1996.

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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Endorsement notice

The text of ISO 2431:2011 has been approved by CEN as a EN ISO 2431:2011 without any modification.

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INTERNATIONAL STANDARD

**ISO
2431**

Fifth edition
2011-11-15

Paints and varnishes — Determination of flow time by use of flow cups

*Peintures et vernis — Détermination du temps d'écoulement au moyen
de coupes d'écoulement*

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ISO 2431:2011(E)

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 2431 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This fifth edition cancels and replaces the fourth edition (ISO 2431:1993), which has been technically revised. It also incorporates the Technical Corrigenda ISO 2431:1993/Cor.1:1994 and ISO 2431:1993/Cor.2:1999.

The main technical changes are as follows:

- a) the curves in Figures 2 to 5 have been placed in a single figure (Figure 2) and the equations for the conversion of flow time to kinematic viscosity and vice versa represented by the curves in these figures have been moved from the figures to a table (Table 1);
- b) the accuracy of the stopwatch used is no longer specified;
- c) a clause has been added describing the marking of products tested to indicate the results of the test;
- d) the procedure for checking the flow cups for wear and tear has been revised to include two alternative methods (one using a certified reference material or secondary working standard, the other using a certified flow cup) and has been moved to an informative annex;
- e) the former Annex A on the use of flow cups for the adjustment of paint consistency has been deleted;
- f) a new annex describing the conversion of flow times from one temperature to another has been added.

Introduction

The first edition of this International Standard, published in 1972, specified only one flow cup of orifice diameter 4 mm. The second edition specified three flow cups of orifice diameter 3 mm, 4 mm and 6 mm. The third edition corrected errors in Figures 2 and 4 and the equations for those figures. The fourth edition specified four flow cups of orifice diameter 3 mm, 4 mm, 5 mm and 6 mm. The main changes made in this fifth edition are given in the foreword.

As is well known, many countries over the years have developed their own standard flow cups and the difficulty in correlation between them has led to considerable confusion in comparing values. The standardization of an improved design of flow cup has been recommended after careful consideration, by an expert working group, of the role of flow cups for the measurement of the flow time of paints, varnishes and related products.

It is recognized that flow times are reproducible only for products of Newtonian or near-Newtonian flow properties. This effectively limits their practical use. Nevertheless, for checking purposes, these flow cups do serve a useful purpose. Furthermore, the measurement of flow time is often used to confirm the application consistency.

Paints often contain flow-arresting agents to confer increased viscosity. Such paints exhibit non-Newtonian flow properties. Their viscosity during application can only be properly assessed using viscometers such as that described in ISO 3219.

Resins and varnishes can exhibit Newtonian or near-Newtonian flow at much higher viscosities than most paints and, where this applies, flow cups can provide a useful means of controlling the consistency. To meet this requirement, this International Standard provides flow cups suitable for viscosities up to about 700 mm²/s.

With thixotropic materials, stirring or other such mechanical disturbance immediately before testing will reduce the flow time compared with that for an unstirred sample. With such materials, uncertain and variable flow time values are obtained with all the flow cups. The repeatability and reproducibility limits given in Clause 9 cannot be achieved in the determination of the flow time of such materials.

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