SLOVENSKI STANDARD

SIST EN ISO 15023-2:2006

01-julij-2006

Polimerni materiali - Materiali na osnovi polivinilalkohola (PVAL) – 2. del: Ugotavljanje lastnosti (ISO 15023-2:2001)

Plastics - Poly(vinyl alcohol) (PVAL) materials - Part 2: Determination of properties (ISO 15023-2:2003)

Kunststoffe - Polyvinylalkohol (PVAL)-Formmassen - Teil 2: Bestimmung von Eigenschaften (ISO 15023-2:2003)

Plastiques - Matériaux en poly(alcool de vinyle) (PVAL) - Partie 2: Détermination des propriétés (ISO 15023-2:2003)

Ta slovenski standard je istoveten z: EN ISO 15023-2:2006

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83.080.20

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN ISO 15023-2

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English Version

Plastics - Poly(vinyl alcohol) (PVAL) materials - Part 2: Determination of properties (ISO 15023-2:2003)

Plastiques - Matériaux en poly(alcool de vinyle) (PVAL) - Partie 2: Détermination des propriétés (ISO 15023-2:2003)

Kunststoffe - Polyvinylalkohol (PVAL)-Formmassen - Teil 2: Bestimmung von Eigenschaften (ISO 15023-2:2003)

This European Standard was approved by CEN on 16 March 2006.

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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 Central Secretariat has the same status as the official versions.

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

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Foreword

The text of ISO 15023-2:2003 has been prepared by Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 15023-2:2006 by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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.

Endorsement notice

The text of ISO 15023-2:2003 has been approved by CEN as EN ISO 15023-2:2006 without any modifications.

INTERNATIONAL STANDARD

ISO 15023-2

First edition
2003-04-15

Plastics — Poly(vinyl alcohol) (PVAL) materials —

Part 2: Determination of properties

Plastiques — Matériaux en poly(alcool de vinyle) (PVAL) —

Partie 2: Détermination des propriétés

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 15023-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

ISO 15023 consists of the following parts, under the general title *Plastics — Poly(vinyl alcohol) (PVAL) materials*:

— *Part 1: Designation system and basis for specifications*

— *Part 2: Determination of properties*

Plastics — Poly(vinyl alcohol) (PVAL) materials —

Part 2:
Determination of properties

1 Scope

This part of ISO 15023 specifies the methods to be used in determining the properties of poly(vinyl alcohol), which is normally prepared by hydrolysis of poly(vinyl acetate) and whose composition comprises vinyl alcohol monomeric units and vinyl acetate monomeric units. This part of ISO 15023 is applicable to poly(vinyl alcohol) with a vinyl alcohol unit content (degree of hydrolysis) from 70 mol % to 100 mol %.

In addition to the designatory properties specified in ISO 15023-1 (degree of hydrolysis and viscosity of an aqueous solution), this part of ISO 15023 includes a number of other properties which are commonly used to specify PVAL materials (see Table 1).

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 976:1996, *Rubber and plastics — Polymer dispersions and rubber latices — Determination of pH*

ISO 6587:1992, *Paper, board and pulps — Determination of conductivity of aqueous extracts*

ISO 8130-1:1992, *Coating powders — Part 1: Determination of particle size distribution by sieving*

ISO 12058-1:1997, *Plastics — Determination of viscosity using a falling-ball viscometer — Part 1: Inclined-tube method*

ISO 15023-1:2001, *Plastics — Poly(vinyl alcohol) (PVAL) materials — Part 1: Designation system and basis for specifications*

3 Determination of properties

In the determination of properties and the presentation of results, the standards, methods and special conditions listed in Table 1 shall apply. The properties listed in Table 1 are those appropriate to poly(vinyl alcohol).

Table 1 — Properties and test conditions

Property	Method	Unit	Test conditions and supplementary instructions
Volatile-matter content	Annex A	% by mass	105 °C, 3 h
Sodium acetate content	Annex B	% by mass	Titration or conductivity method
Ash	Annex C	% by mass	
Degree of hydrolysis	Annex D	mol %	Titration method
Viscosity of 4 % aqueous solution	Annex E	mPa·s	Rotational or inclined-tube falling-ball viscometer, 20 °C
Particle size distribution	ISO 8130-1	%	
pH of aqueous solution	ISO 976	—	Concentration (4,0 ± 0,2) %

Annex A
(normative)

Determination of volatile-matter content

A.1 Scope

This annex specifies the method to be used for the determination of the volatile-matter content of PVAL.

A.2 Principle

The volatile-matter content is calculated from the loss in mass of a specimen heated at 105 °C for 3 h.

A.3 Method

A.3.1 Apparatus

A.3.1.1 **Constant-temperature oven,** able to maintain a temperature of (105 ± 2) °C.

A.3.1.2 **Weighing dish,** shallow, about 60 mm in diameter and 30 mm in height, of glass, aluminium or preferably stainless steel, with a lid.

A.3.1.3 **Balance,** capable of weighing to 0,001 g.

A.3.1.4 **Desiccator,** containing silica gel as a drying agent.

A.3.2 Procedure

Carry out the determination in duplicate.

Weigh the dish (A.3.1.2) with its lid to the nearest 0,001 g (m_0), after heating it in the oven (A.3.1.1) maintained at (105 ± 2) °C for 1 h and cooling it to room temperature in the desiccator (A.3.1.4). Spread about 5 g of resin evenly over the bottom of the dish, replace the lid and weigh to the nearest 0,001 g (m_1). Place the assembly in the oven at (105 ± 2) °C, remove the lid (leaving it in the oven) and close the oven door. After 3 h ± 5 min, remove the assembly from the oven, allow to cool in the desiccator and weigh to the nearest 0,001 g (m_2).

A.4 Expression of results

Calculate the volatile-matter content w_{VM}, as a percentage by mass, from the following equation:

$$w_{VM} = \frac{m_1 - m_2}{m_1 - m_0} \times 100$$

where

m_0 is the mass, in g, of the dish;

m_1 is the initial mass, in g, of the dish plus test portion;