



**SLOVENSKI STANDARD**  
**oSIST prEN ISO 24024-2:2019**  
**01-maj-2019**

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**Polimerni materiali - Homo- in kopolimeri vinilklorida - 2. del: Priprava preskušancev in ugotavljanje lastnosti (ISO/DIS 24024-2:2019)**

Plastics - Homopolymer and copolymer resins of vinyl chloride - Part 2: Preparation of test samples and determination of properties (ISO/DIS 24024-2:2019)

Kunststoffe - Homo- und Copolymere des Vinylchlorids - Teil 2: Herstellung von Probekörpern und Bestimmung von Eigenschaften (ISO/DIS 24024-2:2019)

Plastiques - Résines d'homopolymères et de copolymères de chlorure de vinyle - Partie 2: Préparation des échantillons pour essai et détermination des propriétés (ISO/DIS 24024-2:2019)

**Ta slovenski standard je istoveten z: prEN ISO 24024-2**

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**ICS:**

83.080.20      Plastomeri      Thermoplastic materials

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# DRAFT INTERNATIONAL STANDARD

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## Plastics — Homopolymer and copolymer resins of vinyl chloride —

Part 2:

### Preparation of test samples and determination of properties

*Plastiques — Résines d'homopolymères et de copolymères de chlorure de vinyle —  
Partie 2: Préparation des échantillons pour essai et détermination des propriétés*

ICS: 83.080.20

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## ISO/DIS 24024-2:2019(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 Electro technical Commission (IEC) on all matters of electro technical standardization.

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.

International Standard ISO 1060-2 was prepared by Technical Committee ISO/TC 61, Plastics, Subcommittee SC 9, Thermoplastic materials.

This third edition cancels and replaces the second edition (ISO 1060-2:1985) and includes the following main changes:

- a) The list of test methods in [table 1](#) has been revised;
- b) The preparation of standard pastes has been included.

ISO 1060 consists of the following parts, under the general title Plastics - Homopolymer and copolymer resins of vinyl chloride.

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

**Part 2:** Preparation of test samples and determination of properties

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# Plastics — Homopolymer and copolymer resins of vinyl chloride —

## Part 2: Preparation of test samples and determination of properties

### 1 Scope

This part of ISO 1060 specifies the methods of preparation of test samples and the test methods to be used in determining the properties of PVC resins. Requirements for handling test material and for conditioning the material before testing are given here. In addition, properties and test methods which are suitable and necessary to characterize PVC resins are listed.

In order to obtain reproducible and comparable test results, it is necessary to use the methods of sample preparation and conditioning and the test procedures specified herein. Values determined will not necessarily be identical to those obtained using different test samples, or test samples prepared using different procedures.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 1060. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 1060 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 60:1977, *Plastics — Determination of apparent density of material that can be poured from a specified funnel*

ISO 1068:1975, *Plastics — Homopolymer and copolymer resins of vinyl chloride — Determination of compacted apparent bulk density*

ISO 1158:—, *11, Plastics — Vinyl chloride homopolymers and copolymers — Determination of chlorine content*

ISO 1159:1978, *Plastics — Vinyl chloride-vinyl acetate copolymers — Determination of vinyl acetate*

ISO 1264:1980, *Plastics — Homopolymer and copolymer resins of vinyl chloride — Determination of pH of aqueous extract*

ISO 1265:1979, *Plastics — Polyvinyl chloride resins — Determination of number of impurities and foreign particles*

ISO 1269:1980, *Plastics — Homopolymer and copolymer resins of vinyl chloride — Determination of volatile matter (including water)*

ISO 1385-1:1977, *Phthalate esters for industrial use — Methods of test — Part 1: General*

ISO 1624:1978, *Plastics — Vinyl chloride homo polymer and copolymer resins — Sieve analysis in water*

ISO 1628-2:—, *2), Plastics-Determination of the viscosity of polymers in dilute solution using capillary viscometers — Part 2: Poly (vinyl chloride) resins*

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ISO 2555:1989, *Plastics — Resins in the liquid state or as emulsions or dispersions -Determination of apparent viscosity by the Brookfield Test method*

ISO 2591-1:1988, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

ISO 3219:1993, *Plastics — Polymers/resins in the liquid state or as emulsions or dispersions — Determination of viscosity using a rotational viscometer with defined shear rate*

ISO 3451-5:1989, *Plastics — Determination of ash - Part 5: Poly (vinyl chloride)*

ISO 4574:1978, *Plastics — PVC resins for general use — Determination of hot plasticizer absorption*

ISO 4575:1985, *Plastics — Polyvinyl chloride pastes — Determination of apparent viscosity using the Severs rheometer*

ISO 4608:—, 3), *Plastics — Homopolymer and copolymer resins of vinyl chloride for general use — Determination of plasticizer absorption at room temperature*

ISO 4610:1977, *Plastics — Vinyl chloride homopolymer and copolymer resins — Sieve analysis using air-jet sieve apparatus*

ISO 4612:—, 4), *Plastics — Preparation of PVC pastes for test purposes — Planetary-mixer method*

ISO 6186:—, 5), *Plastics — Determination of pour ability*

ISO 6401:1985, *Plastics — Homopolymer and copolymer resins of vinyl chloride — Determination of residual vinyl chloride monomer — Gas chromatographic method*

ISO 11468:1997, *Plastics — Preparation of PVC pastes for test purposes — Dissolver method*

**3 Terms and definitions**

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

**4 Preparation of test samples****4.1 Sampling**

The sample of resin taken shall be generally representative of the resin whose properties are to be determined and be sufficiently large to provide the number of test samples required by the test methods concerned.

**4.2 Preparation of standard pastes**

In order to carry out certain tests on paste resins, it is necessary to prepare standard pastes from the test sample concerned.

For designation purposes, one of two standard paste formulations, A and B, shall be used, but formulation A should be used in preference. Formulation B should be used when the resin to be designated does not form a paste with formulation A or if the temperature exceeds 35 °C during the preparation of the paste. Formulation B should also be used when it is not possible to measure the viscosities of the paste at both shear rates with formulation.



**Formulation A:** 100 parts by mass of resin

60 parts by mass of bis-(2-ethylhexyl) phthalate (DOP)

**Formulation B:** 100 parts by mass of resin

100 parts by mass of bis-(2-ethylhexyl) phthalate (DOP)

The pastes shall be prepared in accordance with ISO 4612 (method B) or ISO 11468 except in cases of dispute when they shall be prepared by method B of ISO 4612.

When measured at 20 °C by the methods described in ISO 1385-1, the density, refractive index and dynamic viscosity of the DOP plasticizer used shall have the following values:

Density : 0,982 g/cm<sup>3</sup> to 0,984 g/cm<sup>3</sup>

Refractive index : 1,486 to 1,487

Dynamic viscosity : 77 mPa·s to 83 mPa·s

## 5 Conditioning of test samples

Condition test samples prior to testing wherever specified in the test method or product specification.

## 6 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.

For the designation of general-purpose resins, retention on a 63 µm mesh sieve shall be determined in accordance with ISO 4610 while, for paste resins and filler resins, it shall be determined in accordance with ISO 1624.

## ISO/DIS 24024-2:2019(E)

Table 1 — Properties and test procedures

Property	Standard	Units
<b>Properties of powder</b>	ISO 60 ISO 1068	g/ml
Apparent density <sup>1)</sup>	ISO 1265	g/ml
Compacted apparent bulk density	ISO 1624	number of specs per 100 sq of grid
Impurities and foreign particles Sieve analysis in water <sup>1)</sup>	ISO 2591-1 ISO 4608 ISO 4610	% % or other Appropriate unit
Methods using test sieves of woven wire cloth Plasticizer absorption at room temperature <sup>1)</sup>	ISO 4574	Parts per 100 parts of resin by mass
Sieve analysis using air-jet sieve apparatus <sup>1)</sup>	ISO 6186	%
Hot plasticizer absorption		Parts per 100 parts of resin by mass
Pourability		s
<b>Chemical properties</b>	ISO 1158	%
Chlorine content	ISO 1159	%
Vinyl acetate content	ISO 1264	-
pH of aqueous extract	ISO 1269	%
Volatile matter (including water)	ISO 1628-2	ml/g
Reduced viscosity <sup>1)</sup>	ISO 3451-5	-
K value	ISO 6401	%
Ash		mg/kg
Residual vinyl chloride monomer		
<b>Viscosity of pastes</b>		
The pastes used for all viscosity determinations shall be prepared in accordance with ISO 4612 or ISO 11468		
Apparent viscosity by the Brookfield test method	ISO 2555	Pa.s
Viscosity with a rotational viscometer working at defined shear rate 1) 2)	ISO 3219	Pa.s
Apparent viscosity using the Severs rheometer	ISO 4575	Pa.s
1) Designatory property.		
2) In cases of dispute, method B of ISO 4612 shall be used for paste preparation		