SLOVENSKI STANDARD
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Polimerni materiali - Homo- in kopolimeri vinilklorida - 1. del: Sistem označevanja in podlage za specifikacije (ISO/DIS 24024-1:2019)

Plastics - Homopolymer and copolymer resins of vinyl chloride - Part 1: Designation system and basis for specifications (ISO/DIS 24024-1:2019)

Kunststoffe - Homo- und Copolymere des Vinylchlorids - Teil 1: Bezeichnungssystem und Basis für Spezifikationen (ISO/DIS 24024-1:2019)

Plastiques - Résines d'homopolymères et de copolymères de chlorure de vinyle - Partie 1: Système de désignation et base de spécification (ISO/DIS 24024-1:2019)

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83.080.20	Plastomeri	Thermoplastic materials

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Plastics — Homopolymer and copolymer resins of vinyl chloride —

Part 1:
Designation system and basis for specifications

Plastiques — Résines d'homopolymères et de copolymères de chlorure de vinyle —

Partie 1: Système de désignation et base de spécification

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Contents

Page

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.

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 1060-1 was prepared by Technical Committee ISO/TC 61, Plastics, Subcommittee SC 9, Thermoplastic materials.

This second edition cancels and replaces the first edition (ISO 1060-1:1982) and includes the following main changes:

a) The viscosity and the type of rheological behavior of standard pastes have been introduced as designatory properties for paste resins;

b) Retention on a 63 µm sieve has been introduced as a designatory property;

c) Plasticizer absorption has been introduced as a designatory property.

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

Plastics-Homopolymer and Copolymer Resins of Vinyl Chloride -

Part 1: Designation system and basis for specifications

Plastics — Homopolymer and copolymer resins of vinyl chloride —

Part 1: Designation system and basis for specifications

1 Scope

1.1 This part of ISO 1060 establishes a system of designation for vinyl chloride thermoplastic resins which may be used as the basis for specifications.

1.2 The types of vinyl chloride plastics are differentiated from each other by a classification system based on appropriate levels of the designatory properties:

a) Reduced viscosity

b) Apparent density

c) Retention on a 63 µm mesh sieve

d) Plasticizer absorption at room temperature (for general-purpose resins and filler resins only)

e) The viscosity and the type of rheological behaviour of a standard paste (for paste resins only)

And on information about basic polymer parameters, polymerization processes and intended applications.

1.3 This part of ISO 1060 is applicable to resins in powder form which consist of homopolymers of the monomer vinyl chloride and copolymers, Ter-polymers, etc., of vinyl chloride with one or more other monomers, but where vinyl chloride is the main constituent. The resins may contain small amounts of non-polymerized substances (e.g. emulsifying or suspending agents, catalyst residues, etc.) and other substances added during the course of polymerization.

1.4 It is not intended to imply that materials having the same designation give necessarily the same performance. This part of ISO 1060 does not provide engineering data, performance data or data on processing conditions which may be required to specify a material for a particular application and/or method of processing.

If such additional properties are required, they shall be determined in accordance with the test methods specified in part 2 of this International Standard, if suitable.

1.5 In order to specify a resin for a particular application or to ensure reproducible processing, additional requirements may be given in data block 5 (see clause 3, introductory paragraph).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1043-1:1997, *Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their Special characteristics*

ISO 1060-2:1998, *Plastics - Homo polymer and copolymer resins of vinyl chloride - Preparation of test samples and determination of properties*

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 Designation and specification system

The designation and specification system for thermoplastics is based on the following standardized pattern: The designation consists of an optional description block, reading "Thermoplastics", and an identity block comprising the International Standard number and an individual-item block. For unambiguous designation, the individual-item block is subdivided into five data blocks providing the following information:

<table>
<tr><td colspan="7">Designation</td></tr>
<tr><td rowspan="3">Description block (optional)</td><td colspan="6">Identity block</td></tr>
<tr><td rowspan="2">International Standard number block</td><td colspan="5">Individual-item block</td></tr>
<tr><td>Data block 1</td><td>Data block 2</td><td>Data block 3</td><td>Data block 4</td><td>Data block 5</td></tr>
</table>

Data block 1: Identification of the plastic by its symbol (PVC, etc.) In accordance with ISO 1043-1 and information about the polymerization process and the composition of the polymer (see 3.1).

Data block 2: Intended application (see 3.2).

Data block 3: Designatory properties (see 3.3).

Data block 4: Fillers or reinforcing materials and their nominal content (not included in this standard).

Data block 5: For the purpose of specifications, a fifth data block may be added containing additional information (see 3.4).

The first character of the individual-item block shall be a hyphen. The data blocks shall be separated from each other by commas.

If a data block is not used, this shall be indicated by doubling the separation sign, i.e.by two commas (,).

4.1 Data block 1

In this data block, after the hyphen, vinyl chloride polymer resins are identified by the symbol PVC or VC/.../... for Homopolymers or copolymers / terpolymers respectively, in accordance with ISO 1043-1, followed, for copolymers / terpolymers, by a space and by a two-figure number indicating the percentage content of combined vinyl chloride. This is calculated from the chlorine content determined in accordance with ISO 1060-2, using the equation:-

$$[VC] = 1,762\,9 \times [Cl]$$

After a hyphen, the polymerization process is indicated by a single code-letter as specified in table

Table 1 — Code-letters used for additional information in data block 1

Code-letter	Definition
S	Suspension polymerization
E	Emulsion polymerization
M	Bulk polymerization
X	Process other than the above, or an intermediate process, including microsuspension

4.2 Data block 2

In this data block, information about intended application is given. The code-letters used are specified in table 2.

Table 2 — Code-letters used in data block 2

Code-letter	Intended application
P	Paste resins
F	Filler resins
G	General-purpose resins (excluding categories P and F)

4.3 Data block 3

In this data block, the reduced viscosity is represented by a three-figure code-number (see 3.3.1), the apparent bulk density by a two-figure code-number (see 3.3.2) and retention on a 63 µm mesh sieve by a two-figure code-number (see 3.3.3). For general-purpose resins and filler resins, the plasticizer absorption at room temperature is represented by a two-figure code-number (see 3.3.4). For paste resins, the viscosity of a standard paste is represented by a letter indicating the paste formulation used, two two-figure code-numbers for the viscosity at 16 s-1 and 100 s-1 and a code-letter indicating the type of rheological behaviour of the paste (see 3.3.5). The codes representing the four designatory properties are separated from each other by hyphens.

If a property value falls on or near a range limit, the manufacturer shall state which range will designate the material. If subsequent individual test values lie on, or on either side of, the range limit because of manufacturing tolerances, the designation is not affected.

NOTE Not all combinations of the values of designatory properties are provided in currently available polymers.

4.3.1 Reduced viscosity

The reduced viscosity shall be determined in accordance with ISO 1060-2.

The possible values of the reduced viscosity are divided into 26 ranges, each represented by a three-figure code number as specified in table 3.

ISO 1060-1:1998(E)

4.3.2 Apparent density

The apparent density shall be determined in accordance with ISO 1060-2.

The possible values of the apparent density are divided into 12 ranges, each represented by a two-figure code number as specified in table 4.

Table 3 — Code-numbers used for apparent density in data block 3

Code-number	Range of apparent density (g/ml)
30	0,32
35	> 0,32 but ≤0,37
40	> 0,37 but ≤0,42
45	> 0,42 but ≤0,47
50	> 0,47 but ≤0,52
55	> 0,52 but ≤0,57
60	> 0,57 but ≤0,62
65	> 0,62 but ≤0,67
70	> 0,67 but ≤0,72
75	> 0,72 but 0,77
80	> 0,77 but ≤0,82
85	>0,82