



SLOVENSKI STANDARD

SIST EN 15354:2022

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Nadomešča:

SIST-TS CEN/TS 15354:2006

Polimerni materiali - Ekstrudirani in/ali kalandrirani, neojačeni filmi ali plošče iz mehčanega polivinilklorida (PVC-P) - Karakterizacija in označevanje

Plastics - Extruded and/or calendered, non-reinforced film and sheeting made of plasticized poly(vinyl chloride) (PVC-P) - Characterization and designation

Kunststoffe - Extrudierte und/oder kalandrierte nichtverstärkte Folien und Bahnen aus weichmacherhaltigem Polyvinylchlorid (PVC-P) - Charakterisierung und Bezeichnung

Plastiques - Film et feuille en poly(chlorure de vinyle) plastifié (PVC-P) extrudés et/ou calandrés, non renforcés - Caractérisation et désignation

Ta slovenski standard je istoveten z: EN 15354:2022

ICS:

83.140.10 Filmi in folije

Films and sheets

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EUROPEAN STANDARD

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English Version

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Plastiques - Film et feuille en poly(chlorure de vinyle) plastifié (PVC-P) extrudés et/ou calandrés, non renforcés - Caractérisation et désignation

Kunststoffe - Extrudierte und/oder kalandrierte nichtverstärkte Folien und Bahnen aus weichmacherhaltigem Polyvinylchlorid (PVC-P) - Leitfaden für die Charakterisierung und Bezeichnung

This European Standard was approved by CEN on 19 September 2022.

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.

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

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SIST EN 15354:2022

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European foreword

This document (EN 15354:2022) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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 April 2023, and conflicting national standards shall be withdrawn at the latest by April 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 15354:2006.

In comparison with the previous edition, the following technical modifications have been made:

- Document transposed from TS into EN;
- Normative references updated;
- Table 1 revised.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

EN 15354:2022 (E)**1 Scope**

This document specifies the characterization and the designation of extruded and/or calendered, non-reinforced film or sheeting made of plasticized poly(vinyl chloride) (PVC-P). It specifies the corresponding test methods for the assessment of the characteristics.

This document is applicable to film and sheeting in the range of thickness from 0,05 mm to 1 mm.

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.

EN 14469-4, *Pigments and extenders — Testing of colouring materials in plasticized polyvinyl chloride (PVC-P) — Part 4: Determination of bleeding of colouring materials*

EN ISO 176, *Plastics — Determination of loss of plasticizers — Activated carbon method (ISO 176)*

EN ISO 177, *Plastics — Determination of migration of plasticizers (ISO 177)*

EN ISO 291, *Plastics — Standard atmospheres for conditioning and testing (ISO 291)*

EN ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1)*

EN ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets (ISO 527-3)*

EN ISO 877 (all parts), *Plastics — Methods of exposure to solar radiation (ISO 877)*

EN ISO 1183 (all parts), *Plastics — Method for determining the density and relative density of non-cellular plastics (ISO 1183)*

EN ISO 2812 (all parts), *Paints and varnishes — Determination of resistance to liquids (ISO 2812)*

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

EN ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1)*

EN ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2)*

EN ISO 6383-1, *Plastics — Film and sheeting — Determination of tear resistance — Part 1: Trouser tear method (ISO 6383-1)*

EN ISO 6383-2, *Plastics — Film and sheeting — Determination of tear resistance — Part 2: Elmendorf method (ISO 6383-2)*

EN ISO 11501, *Plastics — Film and sheeting — Determination of dimensional change on heating (ISO 11501)*

EN ISO 11502, *Plastics — Film and sheeting — Determination of blocking resistance (ISO 11502)*

EN ISO 11664 (all parts), *Colorimetry (ISO 11664)*

EN ISO 18314-1, *Analytical colorimetry — Part 1: Practical colour measurement (ISO 18314-1)*

ISO 4582, *Plastics — Determination of changes in colour and variations in properties after exposure to glass-filtered solar radiation, natural weathering or laboratory radiation sources*

ISO 4591, *Plastics — Film and sheeting — Determination of average thickness of a sample, and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness)*

ISO 4592, *Plastics — Film and sheeting — Determination of length and width*

ISO 4593, *Plastics — Film and sheeting — Determination of thickness by mechanical scanning*

ISO 4892-4, *Plastics — Methods of exposure to laboratory light sources — Part 4: Open-flame carbon-arc lamps*

ISO 8570, *Plastics — Film and sheeting — Determination of cold-crack temperature*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

3.1

film or sheeting made of plasticized poly(vinyl chloride)

(PVC-P)

film or sheeting, manufactured from a compound made of a polymer and/or a copolymer of poly(vinyl chloride) which contains plasticizer(s), filler(s) and additives, as stabilizer(s), lubricant(s), flame retardant(s), colorant(s), etc.

Note 1 to entry: Commonly, the term “film” is used if the thickness is less than 0,1 mm, and the term “sheeting” is used if the thickness is equal to or greater than 0,1 mm.

3.2

thickness of a film or sheeting

dimension measured perpendicularly, in specified conditions, between the two main surfaces of a film or a sheeting

3.3

nominal thickness of a film or sheeting

thickness of a film or sheeting (3.2), as declared by the manufacturer or specified in an agreement between the manufacturer and the purchaser

3.4

width of a film or a sheeting

smaller dimension of a film or sheeting, corresponding to the width of the unwound roll, measured on a flat surface in the transverse direction

EN 15354:2022 (E)**3.5****nominal width of a film or a sheeting**

width of a film or sheeting (3.4), as declared by the manufacturer or specified in an agreement between the manufacturer and the purchaser

3.6**roll length**

largest dimension of the film or the sheeting corresponding to the length of the unwound roll

3.7**nominal roll length**

roll length (3.6) of a film or sheeting, as declared by the manufacturer or specified in an agreement between the manufacturer and the purchaser

3.8**longitudinal direction of a film or sheeting**

MD

direction parallel to the length of the roll corresponding to the direction of the flow of the material from the converting equipment (extruder or calender)

3.9**transverse direction of a film or sheeting**

TD

direction parallel to the width of the film or sheeting

3.10**main surface of a film or sheeting**

surface visible after installation of the film of sheeting which presents the appearance required by the application

Note 1 to entry: The final appearance may be obtained by using finishing operations as printing, embossing, coating, polishing, etc.

3.11**smudge**

location on a printed film or sheeting where ink is dragged before drying

4 Appearance

Film or sheeting is visually examined on a minimum surface area equal to 2 m (MD) x width of the film or sheeting (TD).

Both sides of the film or sheeting are examined from the roll laid down, without tension, on a flat and opaque surface.

When viewed without magnification, the general appearance of the film or sheeting and the levels of pinholes, contaminants, streaks and creases shall meet the standards of good manufacturing practices or shall be agreed upon between the manufacturer and the purchaser.

5 Characterization of film or sheeting

5.1 Conditioning

Unless otherwise specified by the applicable test method (see Table 1), the test pieces shall be conditioned at (23 ± 2) °C and (50 ± 10) % relative humidity before testing in accordance with EN ISO 291.

5.2 Ageing

To assess the characteristics of the film or the sheeting after an artificial ageing, the methods of exposure to laboratory sources according to EN ISO 4892-1 and EN ISO 4892-2 or ISO 4892-4, as applicable, shall be used.

To assess the characteristics of the film or the sheeting after a natural ageing, the methods of exposure to direct weathering, to weathering using glass-filtered daylight or to intensified weathering by daylight using Fresnel mirrors according to EN ISO 877 (all parts) shall be used.

5.3 Characteristics of resistance to fire, reaction to fire and toxicity

It is recommended that the relevant national regulations on fire resistance, reaction to fire and toxicity are taken into account by the manufacturer.

5.4 Characteristics and test methods

The characteristics and the corresponding test methods are given in Table 1.

If any, the agreement between the manufacturer and the purchaser shall refer to the applicable characteristics for the film or sheeting given in Table 1 and shall give the parameters as requested by the applicable test methods.

The requirements and the applicable tolerances for each relevant characteristic shall be given by this agreement.

<https://standards.iteh.ai/catalog/standards/sist/9741d3d7-6df4-4f19-b945-4beb0f0705e1/sist-en-15354-2022>

Table 1 — Characteristics and test methods

Characteristics		Unit	Test method
Characteristics of the material	Density ^a	kg/m ³	EN ISO 1183 (all parts)
	Ash or sulphated ash	% by mass	EN ISO 3451-5
	Loss of plasticizers	% by mass	EN ISO 176 (activated carbon method) EN ISO 177 (contact method)
	Bleeding of colorants	—	EN 14469-4
Dimensional characteristics	Thickness	µm or mm	ISO 4593 for the mechanical scanning ^a ISO 4591 for the gravimetric techniques
	Width of film and sheeting	mm	ISO 4592
	Length of a roll	m	ISO 4592
Colour characteristics	Colour measurement Colour differences	— —	EN ISO 11664 (all parts), EN ISO 18314-1
	Changes in colour after exposure to daylight under glass, natural weathering or laboratory light sources	—	EN ISO 877 (all parts), EN ISO 4892-1 EN ISO 4892-2 ISO 4892-4 (ageing methods) ISO 4582
Surface changes affected by fluids	Resistance to liquids (generally)	—	EN ISO 2812 (all parts)
	Emboss retention	—	Annex A
Mechanical characteristics	Ultimate tensile strength	MPa	EN ISO 527-1 and EN ISO 527-3
	Tensile strain at maximum force	%	
	Modulus of elasticity	MPa	
	Tear resistance	N/mm	EN ISO 6383-1 for the trouser tear method EN ISO 6383-2 for the Elmendorf method
	Blocking resistance	N	EN ISO 11502
Thermal characteristics	Cold crack temperature	°C	ISO 8570
	Dimensional change on heating (MD, TD)	%	EN ISO 11501
^a Not applicable for embossed film or sheeting.			