



**SLOVENSKI STANDARD**  
**SIST-TS CEN/TS 15354:2006**  
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Plastics - Extruded and/or calendered, non-reinforced film and sheeting made of plasticized poly(vinyl chloride) (PVC-P) - Guidance for characterisation and designation

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

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

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**Ta slovenski standard je istoveten z: CEN/TS 15354:2006**

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**ICS:**

83.140.10      Filmi in folije      Films and sheets

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English Version

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This Technical Specification (CEN/TS) was approved by CEN on 23 December 2005 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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## Foreword

This Technical Specification (CEN/TS 15354:2006) has been prepared by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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.

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## 1 Scope

This Technical Specification gives a guidance for the characterisation 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 Technical Specification is applicable to film and sheeting in the range of thickness from 0,05 mm to 1 mm.

## 2 Normative references

The following referenced documents are indispensable for the application of this Technical Specification. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 176, *Plastics — Determination of loss of plasticizers — Activated carbon method (ISO 176:2005)*

EN ISO 183, *Plastics — Qualitative evaluation of the bleeding of colorants (ISO 183:1976)*

EN ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1:1993 including Corr 1:1994)*

EN ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets (ISO 527-3:1995)*

EN ISO 877, *Plastics — Methods of exposure to direct weathering, to weathering using glass-filtered daylight, and to intensified weathering by daylight using Fresnel mirrors (ISO 877:1994)*

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

EN ISO 3451-5, *Plastics — Determination of ash — Part 5: Poly(vinyl chloride) (ISO 3451-5:2002)*

EN ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance (ISO 4892-1:1999)*

EN ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2:2006)*

EN ISO 6383-1, *Plastics — Film and sheeting — Determination of tear resistance — Part 1: Trouser tear method (ISO 6383-1:1983)*

EN ISO 6383-2, *Plastics — Film and sheeting — Determination of tear resistance — Part 2: Elmendorf method (ISO 6383-2:1983)*

EN ISO 11501, *Plastics — Film and sheeting — Determination of dimensional change on heating (ISO 11501:1995)*

EN ISO 11502, *Plastics — Film and sheeting — Determination of blocking resistance (ISO 11502:1995)*

ISO 4582, *Plastics — Determination of changes in colour and variations in properties after exposure to daylight under glass, natural weathering or laboratory light 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 7724-1, *Paints and varnishes — Colorimetry — Part 1: Principles*

ISO 7724-2, *Paints and varnishes — Colorimetry — Part 2: Colour measurement*

ISO 7724-3, *Paints and varnishes — Colorimetry — Part 3: Calculation of colour differences*

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

### 3 Terms and definitions

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

#### 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) in which are incorporated plasticizer(s), filler(s) and additives, as stabilizer(s), lubricant(s), flame retardant(s), colorant(s) etc.

NOTE Commonly, the term, film, is used if the thickness is less than 0,1 mm, and the term, sheeting, 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

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#### 3.3

##### **nominal thickness of a film or sheeting**

thickness of a film or sheeting, 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

#### 3.5

##### **nominal width of a film or a sheeting**

width of a film or sheeting, 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 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 or sheeting which presents the appearance required by the application

NOTE 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 Characterisation of film or sheeting**

**5.1 Conditioning**

Unless otherwise specified by the applicable test method, the test pieces shall be conditioned at  $(23 \pm 2) ^\circ\text{C}$  before testing in accordance with Table 1.

**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 shall be used.



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

For the characteristics of resistance to fire, reaction to fire and toxicity, the manufacturer shall comply to the specifications which indicates any relevant national regulations.

### 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.

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