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**Polimerni materiali - Prekrivne plastomerne folije za uporabo v kmetijstvu in vrtnarstvu - Dopnilo A1**

Plastics - Thermoplastic covering films for use in agriculture and horticulture

Kunststoffe - Thermoplastische Abdeckfolien für den Einsatz in der Landwirtschaft und im Gartenbau

Plastiques - Films de couverture thermoplastiques pour utilisation en agriculture et horticulture

**Ta slovenski standard je istoveten z: EN 13206:2017/prA1**

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**ICS:**

65.040.30	Rastlinjaki in druge naprave	Greenhouses and other installations
83.140.10	Filmi in folije	Films and sheets

**SIST EN 13206:2017/oprA1:2018**      **en,fr,de**

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Full standard:  
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EUROPEAN STANDARD  
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**DRAFT**  
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ICS 65.040.30; 83.140.10

English Version

## Plastics - Thermoplastic covering films for use in agriculture and horticulture

Plastiques - Films de couverture thermoplastiques  
pour utilisation en agriculture et horticulture

Kunststoffe - Thermoplastische Abdeckfolien für den  
Einsatz in der Landwirtschaft und im Gartenbau

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 249.

This draft amendment A1, if approved, will modify the European Standard EN 13206:2017. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

<b>Contents</b>	<b>Page</b>
European foreword .....	3
1 Modifications to Clause 2, Normative references .....	4
2 Modifications to Clause 6, Table 2 .....	4
3 Modification to 8.9.3 .....	4
4 Modification to Clause 13, Instructions for disposal and end-of-life of covering films .....	4
5 Modification to A.1.2.1 .....	5
6 Modification to A.1.2.3, Temperature .....	5
7 Modifications to A.1.2.4, Apparatus calibration .....	5
8 Modifications to A.2.3, Procedure .....	6
9 Modifications to C.1, Principle .....	6
10 Modifications to C.7, Determination of chlorine in the presence of benzotriazole .....	6
11 Modifications to D.1, Scope .....	6
12 Modifications to Bibliography .....	6

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## European foreword

This document (EN 13206:2017/prA1:2018) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

This document is currently submitted to the CEN Enquiry.

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## EN 13206:2017/prA1:2018 (E)

**1 Modifications to Clause 2, Normative references**

Add the following reference after EN ISO 527-3:

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

**2 Modifications to Clause 6, Table 2**

Replace the existing table 2 with the following:

**Table 2 — Resistance to weathering classification**

Class	Minimum duration of exposure h	
	At irradiance (narrowband – 340 nm) 0,35 W/(m <sup>2</sup> ·nm)	At irradiance (narrowband – 340 nm) 0,51 W/(m <sup>2</sup> ·nm)
N	400	280
A	2 000	1 400
B	3 500	2 450
C	5 400	4 070
D	6 800	4 670
E	8 500	5 830
F	10 700	7 350

Replace the note with the following:

“NOTE An empirical correlation between durability of covering films for greenhouses exposed to artificial weathering and natural exposure is given in Annex B (informative). The correlation study has been performed at an irradiance in narrow band (340 nm) equal to 0,35 W/(m<sup>2</sup>·nm).”

**3 Modification to 8.9.3**

Replace the 1<sup>st</sup> paragraph with the following:

“Expose the specimens using a backing made of matt aluminium plate according to 8.9.2 during the minimum duration of exposure specified in Table 2, corresponding to the class of durability of the film.”

**4 Modification to Clause 13, Instructions for disposal and end-of-life of covering films**

Replace the 5<sup>th</sup> and 6<sup>th</sup> paragraphs with the following:

“EN 15347 [2] provides a framework for characterizing plastic waste. EN 15343 [3] provides the procedures necessary for ensuring the traceability of recycled plastics. EN 15344 [4] provides data for characterizing polyethylene recyclates.

ISO 15270 [5] provides guidelines for terminology and material recovery, in particular through mechanical recycling.”

## 5 Modification to A.1.2.1

Replace the existing NOTE with the following:

”NOTE Information on the influence of water and additive migration can be found in ISO 10640 [6].”

## 6 Modification to A.1.2.3, Temperature

Replace the text of the whole subclause with the following:

“The apparatus can be designed according to different technologies (type of temperature sensor, layout of the test chamber, ventilation mode, etc.). The set points of the temperature of the different parts of the temperature controller (with an accuracy of  $\pm 0,5$  °C) shall ensure an accurate and reproducible control of the actual temperature of the exposed specimens.

The set points of the temperature for different apparatus available on the market at the date of the publication of this standard shall be set as follows:

- a) for apparatus including a platinum sensor in contact with a specimen attached to the specimen holder, the set point of the temperature shall be  $(60 \pm 0,5)$  °C.
- b) for apparatus the specimen compartment of which is separated from the compartment of the light source, and the sensor of which is a black-standard thermometer (BST) according to EN ISO 4892-1, the set point shall be  $(65 \pm 0,5)$  °C and the temperature of the specimen compartment shall be  $(55 \pm 0,5)$  °C.
- c) for apparatus including a platinum sensor inserted in a white thermally-controlled component, the set point of the temperature shall be  $(58 \pm 0,5)$  °C.

As a given temperature set point can lead to different results since the actual temperature of the exposed specimens is depending on the design of the apparatus, it is necessary to calibrate them. See A.1.2.4.

NOTE The actual temperature of exposed specimens is critical since the thermal activation energy of photochemical processes leads to exponential variation of the degradation rate according to a type-Arrhenius law.”

## 7 Modifications to A.1.2.4, Apparatus calibration

Replace the 1<sup>st</sup> paragraph with the following:

“The calibration of the apparatus shall be carried out relatively to the photochemistry by means of an actinometer made from a polyethylene reference specimens (PERS), as defined in ISO/TR 19032:2006 [7]”

Replace the paragraph before the NOTE with the following:

“If the calculated absorbance ratio is out of the range as defined above, adjust the temperature set point and recalibrate until this condition is satisfied (the temperature set point will be increased if  $A_r < 1,8$  or will be decreased if  $A_r > 2,4$ ).”

## 8 Modifications to A.2.3, Procedure

Replace the 2<sup>nd</sup> paragraph with the following:

“After the exposure, the tensile strain at break shall be determined according to EN ISO 527-1 and EN ISO 527-3, using five type 2 test pieces, 10 mm wide, 150 mm long, taken longitudinally in the film (MD), at a test speed of 500 mm/min.”

## 9 Modifications to C.1, Principle

Replace the text of C.1 with the following:

“A sample of a thermoplastic film is subjected to an oxidative pyrolysis and the content of the chlorine detected in the gases given off is determined by coulometry. This test method applies to thermoplastics materials except for chlorinated polymers [8].”

## 10 Modifications to C.7, Determination of chlorine in the presence of benzotriazole

Replace the 1<sup>st</sup> paragraph with the following:

“In the case of presence of the UV absorbent additive benzotriazole (CAS no. 3896-11-5), in the sample to be analysed, the amount of chlorine from the (non-reactive) additive shall be quantified and subtracted from the total chlorine analysed in the sample. The result of this sum will be the chlorine content from external treatments which, due to its reactive nature may have an effect on the premature degradation of the covers and is that which have to be considered [9].”

## 11 Modifications to D.1, Scope

Replace the text of D.1 with the following:

“The purpose of this method is the determination of S content in plastic materials using the ICP-OES technique [10].”

## 12 Modifications to Bibliography

Replace:

- [5] EN 15345, *Plastics - Recycled Plastics - Characterization of Polypropylene (PP) recyclates*
- [6] ISO 15270, *Plastics — Guidelines for the recovery and recycling of plastics waste*
- [7] ISO 10640:2011, *Plastics — Methodology for assessing polymer photoageing by FTIR and UV/visible spectroscopy*
- [8] ISO/TR 19032:2006, *Plastics — Use of polyethylene reference specimens (PERS) for monitoring laboratory and outdoor weathering conditions*
- [9] UNE 53087-2:2005, *Plásticos y elastómeros. Determinación del contenido en cloro. Parte 2: Método de Coulombimetría*
- [10] Cepla Method MA-02:2013, *Determination of total chlorine content in greenhouse covers using coulometry*
- [11] Cepla Method MA-03:2013, *Determination of total sulphur content in greenhouse covers using ICP OES*