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ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 13655:2018

Plastics - Thermoplastic mulch films recoverable after use, for use in agriculture and horticulture

Kunstoffe - Nach Gebrauch rückbaubare thermoplastische Mulchfolien für den Einsatz in Landwirtschaft und im Gartenbau

Plastiques - Films de paillage thermoplastiques récupérables après usage, pour utilisation en agriculture et horticulture

02/2018

National Foreword

This European Standard EN 13655:2018 was adopted as Luxembourgish Standard ILNAS-EN 13655:2018.

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ILNAS-EN 13655:2018

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13655

February 2018

ICS 83.140.10

Supersedes EN 13655:2002

English Version

Plastics - Thermoplastic mulch films recoverable after use, for use in agriculture and horticulture

Plastiques - Films de paillage thermoplastiques récupérables après usage, pour utilisation en agriculture et horticulture

Kunstoffe - Nach Gebrauch abnehmbare thermoplastische Mulchfolien für den Einsatz in Landwirtschaft und im Gartenbau

This European Standard was approved by CEN on 10 December 2017.

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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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Ref. No. EN 13655:2018 E

Contents

Page

ILNAS-EN 13655:2018 - Preview only Copy via ILNAS e-Shop

ILNAS-EN 13655:2018 - Preview only Copy via ILNAS e-Shop

European foreword

This document (EN 13655:2018) 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of an identical text or by endorsement, at the latest by August 2018 and conflicting national standards shall be withdrawn at the latest by August 2018.

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 EN 13655:2002.

The following technical changes have been made in comparison to EN 13655:2002:

— the Scope has been extensively specified and enlarged to installation, use and removal conditions of mulch films;

— the standard is only applicable to thermoplastic mulch films recoverable after use;

— modification of the minimum nominal thickness of the mulch films which conform to this standard, 20 µm instead of 10 µm;

— the types of mulch films have been redefined;

— the Table 2-Classification according to artificial weathering, has been modified;

— the paragraphs for requirements, test methods, acceptance, storage and handling have been drafted in a new frame;

— the paragraphs on functions and factors of degradability, instructions disposal of mulch films and end-of-life, have been added.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This document specifies the requirements related to dimensional, mechanical, optical and thermal characteristics of thermoplastic films for mulching applications in agriculture and horticulture.

These mulch films are intended to be removed after use and not incorporated in the soil.

These mulch films are not intended to be used for soil disinfection by fumigation. Films for this application are in the scope of EN 17098-1[1].

It specifies a classification for durability of mulching films and the test methods referred to in this document.

This document is applicable to thermoplastic mulch films, used for agriculture and horticulture in Europe, based on polyethylene and/or ethylene copolymers, of the following types:

— transparent films;

— black films;

— reflective films (e.g. white films, black/white films and black/silver films);

— films of other colour(s) for weed control (e.g. green, brown).

This document also defines installation, use and removal conditions of mulch films.

NOTE Mulch films are considered as highly contaminated by soil and vegetal residues: the observed rates (or levels) of contamination of mulch films can vary from 70 % to 90 %. Therefore the film thickness is a key factor on the rate of contamination, the thinnest films (e.g. less than 25 µm) will be the mostly contaminated, difficult, expensive to remove, recover and recycle.

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

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

EN ISO 4892-2:2013, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

EN ISO 7765-1:2004, *Plastics film and sheeting - Determination of impact resistance by the free-falling dart method - Part 1: Staircase methods (ISO 7765-1:1988)*

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 9845-1, *Solar energy - Reference solar spectral irradiance at the ground at different receiving conditions - Part 1: Direct normal and hemispherical solar irradiance for air mass 1,5*

ASTM D 1003-13, *Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics*

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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 http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
width
total width of a film when laid flat

Note 1 to entry: It is expressed in millimetres (mm).

3.2
nominal width
width of a film, as declared by the manufacturer/supplier

Note 1 to entry: It is expressed in millimetres (mm).

3.3
nominal thickness
thickness of a film, as declared by the manufacturer/supplier

Note 1 to entry: It is expressed in micrometres (µm).

3.4
roll length
largest dimension of the film corresponding to the length of the unwinded roll

Note 1 to entry: It is expressed in metres (m).

3.5
longitudinal direction of the film
MD
direction parallel to the roll length corresponding to the extrusion direction

3.6
transverse direction of the film
TD
direction parallel to the width (at right angles to the length)

3.7
radiant exposure
H
time integral of irradiance

Note 1 to entry: It is measured in joules per square metre ($J \cdot m^{-2}$)

[SOURCE: ISO 9370:2017, definition 3.27[2]]

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