



SLOVENSKI STANDARD
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Polimerni materiali - Zaščitne folije za razkuževanje kmetijske in vrtnarske zemlje z zaplinjevanjem - 1. del: Specifikacije za zaščitne folije

Plastics - Barrier films for agricultural and horticultural soil disinfection by fumigation - Part 1: Specifications for barrier films

Kunststoffe - Sperrschichtfolien für die Desinfektion durch Begasung von Landwirtschafts- und Gartenbauböden - Teil 1: Spezifikationen für Sperrschichtfolien

Plastiques - Films barrière pour la désinfection par fumigation des sols agricoles et horticoles - Partie 1: Spécifications des films barrière

Ta slovenski standard je istoveten z: prEN 17098-1

[oSIST prEN 17098-1:2024](https://standards.sist.si/standard/osist/prEN/17098-1/2024)

ICS:

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83.140.10	Filmi in folije	Films and sheets

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Plastics - Barrier films for agricultural and horticultural soil disinfection by fumigation - Part 1: Specifications for barrier films

Plastiques - Films barrière pour la désinfection par fumigation des sols agricoles et horticoles - Partie 1: Spécifications des films barrière

Kunststoffe - Sperrschichtfolien zur Desinfektion durch Begasung von Landwirtschafts- und Gartenbauböden - Teil 1: Spezifikationen für Sperrschichtfolien

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

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prEN 17098-1:2024(E)

European foreword

This document has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by SIS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 17098-1:2018.

prEN 17098-1:2024 includes the following significant technical changes with respect to EN 17098:2018:

- Clause 8 on the design-for-recycling of end of life of barrier films has been added;
- Clause 10 on removal and collection instructions of used barrier films has been modified, referring to prEN 18109¹ for additional information;
- in Clause 11 on removal and collection instructions of used barrier films, the reference to Annex C has been deleted, referring to prEN 18109 **Error! Bookmark not defined.** for additional information;
- Annex C on guidance for conditions for installation, use and removal of barrier films, has been deleted

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

EN 17098, Plastics — Barrier films for agricultural and horticultural soil disinfection by fumigation, consists of the following parts:

- *Part 1: Specifications for barrier films*
- *Part 2: Method for determining film permeability using a static technique*

¹ Under preparation

Introduction

Use of barrier films designed for agricultural and horticultural soil disinfection by means of fumigation has the main objectives of protecting operators and personnel during and after the fumigation operation, limiting the consumption of harmful substances and safeguarding the environment.

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prEN 17098-1:2024(E)**1 Scope**

This document specifies the requirements relating to the dimensional, mechanical and physical-chemical characteristics of thermoplastic barrier films designed for agricultural and horticultural soil disinfection by means of fumigation.

This document specifies also the test methods for verifying these requirements, except the method for determining film permeability using a static technique, which is specified in EN 17098-2.

This document defines the criteria for design for recycling of barrier films and refer to prEN 18109¹ for the product lifecycle, including installation, use, removal and collection for end of life for management of the product after its usage.

This document is applicable to films used during soil disinfection by fumigation (class 1), and to films used during soil disinfection subsequently kept *in situ* as mulch films (class 2).

On the date of publication of this document, the barrier films are multi-layer films.

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 17098-2, *Plastics - Barrier films for agricultural and horticultural soil disinfection by fumigation - Part 2: Method for film permeability determination using a static technique*

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)*

<https://standards.iteh.ai/catalog/standards/sist/bb12b67e-62e8-4c24-886e-092f7179eb46/osist-pren-17098-1-2024>

EN ISO 1133-1, *Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 1: Standard method (ISO 1133-1)*

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 22095, *Chain of custody — General terminology and models*

prEN 18109:2024,¹ *Agricultural plastic products — Installation, use, removal, sorting, collection, preparation for recycling and design for recycling guidelines*

3 Terms and definitions, and abbreviated terms

3.1 Terms and definitions

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

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

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

3.1.1

barrier film

plastic film designed to have low permeability to gas, intended for soil disinfection by fumigation

3.1.2

permeability

ability of a material to transmit gases and liquids by passage through one surface and out at another surface by diffusion and sorption processes

[SOURCE: EN ISO 472:2013 [1], 2.690]

3.1.3

width

total film width once laid flat

Note 1 to entry: It is expressed in millimetres, *mm*.

3.1.4

nominal width

film width, as declared by the manufacturer/supplier

Note 1 to entry: It is expressed in millimetres, *mm*.

3.1.5

nominal thickness

film thickness, as declared by the manufacturer/supplier

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

3.1.6

roll length

longest dimension of the film, corresponding to the length of the un-winded roll

Note 1 to entry: It is expressed in metres, *m*.

3.1.7

nominal roll length

roll length, as declared by the manufacturer/supplier

Note 1 to entry: It is expressed in metres, *m*.

prEN 17098-1:2024(E)**3.1.8****longitudinal direction****MD**

direction parallel to the roll length corresponding to the extrusion direction

3.1.9**transverse direction****TD**

direction parallel to the film width, at right angle to the length

3.1.10**design for recycling**

design of product, including the related accessories, in order to ensure its recyclability under the current practices of removal, sorting, collection and recycling systems

Note 1 to entry: The purpose with the design for recycling criteria is to be able to use the recyclates back in the same product, independent of producer of material.

[SOURCE: prEN 18109:2024]

3.1.11**mechanical recycling**

processing of plastic waste into secondary raw materials or products without significantly changing the chemical structure of the material

Note 1 to entry: Plastics secondary raw material is a synonym of recyclate.

[SOURCE: EN ISO 472:2013[1], 2.1697, modified — Note 1 to entry changed; “plastics waste” changed to read “plastic waste”] [2]

3.1.12**post-consumer plastic**

plastic, generated by the end-users of products, that has fulfilled its intended purpose and can no longer be used for its intended purpose

Note 1 to entry: The term “post-use” is sometimes used synonymously.

Note 2 to entry: Often abbreviated as PCR.

[SOURCE: EN 17615: 2022 [2] 3.192, modified]

3.1.13**pre-consumer plastic**

material diverted from the waste stream during a manufacturing process

Note 1 to entry: Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

3.1.14**recycled content**

proportion, by mass, of recycled plastic in a product or packaging

Note 1 to entry: Only pre-consumer and post-consumer materials shall be considered as recycled content, consistent with the following usage of terms.

3.1.15

controlled blending model

chain of custody model in which materials or products with a set of specified characteristics are mixed according to certain criteria with materials or products without that set of characteristics resulting in a known proportion of the specified characteristics in the final output

Note 1 to entry: The adhered claim may refer to a certain percentage, at batch-level and /or site-level.

[SOURCE: ISO 22095: 2020, 3.3.3]

3.1.16

national collection scheme

NCS

voluntary or mandatory national collection system of defined plastic fractions used in agriculture or horticulture applications

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

EVOH ethylene-(vinyl alcohol) plastic

PA Polyamide

PE polyethylene

TIF totally impermeable film

VIF virtually impermeable film

NCS National Collection Scheme

4 Classification of films by service life

Barrier films are classified under two classes, depending on their service life:

- Class 1: films providing a protective function only. They are held in place during the fumigation operation and then withdrawn before planting.
- Class 2: films providing protection and mulch functions. They are held in place during the fumigation operation, and then kept in place as mulch films.

5 Material and permeability to fumigants

5.1 General

This document is based on a synthesis of the published studies about film permeability to the fumigants, conducted by CEN/TC 249/WG 7. These studies were all carried out in the USA with major films on the market, described as:

- PE films made from polyethylene (PE) materials, exclusively;

NOTE In these studies, PE films were used as blank films and they are not in the scope of this document.

- virtually impermeable films (VIFs) containing polyamide (PA) materials as barrier layer;
- totally impermeable films (TIFs) containing ethylene-(vinyl alcohol) plastic (EVOH) materials as barrier layer.