SLOVENSKI STANDARD
oSIST prEN 18064-2:2024

01-april-2024

Polimerni materiali - Priporočila za kakovost in podlaga za specifikacije za uporabo polimernih reciklatov v izdelkih - 2. del : Polietilen (PE)

Plastics - Quality recommendations and basis for specifications for application of plastic recyclates in products - Part 2 : Polyethylene (PE)

Kunststoffe - Qualitätsempfehlungen und Grundlagen für Spezifikationen für die Verwendung von Kunststoffrezyklaten in Produkten - Teil 2: Polyethylen (PE)

Plastiques - Recommandations qualité et base de spécification pour l'application des recyclats de plastiques dans les produits - Partie 2 : Polyéthylène (PE)

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ICS:

13.030.50	Recikliranje	Recycling
83.080.01	Polimerni materiali na splošno	Plastics in general

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English Version

Plastics - Quality recommendations and basis for specifications for application of plastic recyclates in products - Part 2 : Polyethylene (PE)

Kunststoffe - Qualitätsempfehlungen und Grundlagen für Spezifikationen für die Verwendung von Kunststoffrezyklaten in Produkten - Teil 2: Polyethylen (PET)

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

If this draft becomes a European Standard, 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.

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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
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 18064-2:2024) 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 is part of the prEN 18064-series, currently consisting of all parts as listed below. This series of standards consists of a general part 1, and material specific parts for different types of plastics. This particular part covers typical values (ranges, or min/max values) for polyethylene (PE) general purpose plastics, that can be composed of 100 % recyclates (mechanical and/or chemical), or a combination of recyclates and virgin plastic.

This part is supported by other standards on test methods to which references are made throughout this document.

prEN 18064, *Plastics — Quality recommendations and basis for specifications for application of plastic recyclates in products*, is currently composed with the following parts:

— *Part 1: General aspects*

— *Part 2: Polyethylene (PE)*

— *Part 3: Polypropylene (PP)*

— *Part 4: Poly(ethylene terephthalate) (PET)*

— *Part 5: Poly(vinyl chloride) (PVC)*

— *Part 6: Polystyrene (PS)*

— *Part 7: Acrylonitrile-butadiene-styrene (ABS)*

NOTE Part 6 for PS also includes EPS and XPS.

Introduction

See prEN 18064-1.

1 Scope

This document provides relevant characteristics and typical values for polyethylene (PE) recyclates intended for groups of defined applications (the product families).

The relevant characteristics and typical values for the different product families are derived from the performance requirements of the products belonging to that family, including requirements for product manufacturing processes where applicable.

This document applies to plastic recyclates intended to be used for the manufacturing of (intermediate) products.

This document is intended to be used in conjunction with part 1 of this standard series, which describes the designation system for plastic recyclates. The designation system allows comparison between recycled and virgin material at the level of the polymer's defined designatory properties.

NOTE 1 Examples of designations of plastic recyclates are given in Annex A.

NOTE 2 The selection of relevant properties for a product family is based on EN ISO 10350-1, extended with specific properties related to plastic recyclates.

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.

prEN 18064[1], *Plastics - Recycled Plastics - Classification of recycled plastics based on Data Quality Levels for use and (digital) training*

ASTM D1693, *Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics*

CEN/TR 15353, *Plastics - Recycled plastics - Guidelines for the development of standards for recycled plastics*

prEN 18064-1[2], *Plastics - Quality recommendations and basis for specifications for application of plastic recyclates in products - Part 1: General aspects*

EN 12099, *Plastics piping systems - Polyethylene piping materials and components - Determination of volatile content*

EN 15343, *Plastics - Recycled Plastics - Plastics recycling traceability and assessment of conformity and recycled content*

EN 15344, *Plastics - Recycled plastics - Characterization of Polyethylene (PE) recyclates*

EN 16516, *Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air*

EN ISO 75-2, *Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite (ISO 75-2)*

[1] Under preparation.

[2] Under preparation.

EN ISO 178, *Plastics - Determination of flexural properties (ISO 178)*

EN ISO 179-1, *Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test (ISO 179-1)*

EN ISO 179-2, *Plastics - Determination of Charpy impact properties - Part 2: Instrumented impact test (ISO 179-2)*

EN ISO 306, *Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST) (ISO 306)*

EN ISO 472:2013, *Plastics - Vocabulary (ISO 472:2013)*

EN ISO 527-2, *Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

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

EN ISO 527-4, *Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites (ISO 527-4)*

EN ISO 1043-1, *Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their special characteristics (ISO 1043-1)*

EN ISO 1133 (series), *Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics (all parts)*

EN ISO 3451-1, *Plastics - Determination of ash - Part 1: General methods (ISO 3451-1)*

EN ISO 11357-3, *Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization (ISO 11357-3)*

EN ISO 14021:2016, *Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) (ISO 14021:2016)*

EN ISO 17855-1, *Plastics - Polyethylene (PE) moulding and extrusion materials - Part 1: Designation system and basis for specifications (ISO 17855-1:2014)*

EN ISO 17855-2, *Plastics - Polyethylene (PE) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 17855-2)*

EN ISO 1183-1, *Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1:2019, Corrected version 2019-05)*

EN ISO 1183-2, *Plastics - Methods for determining the density of non-cellular plastics - Part 2: Density gradient column method (ISO 1183-2)*

EN ISO 1183-3, *Plastics - Methods for determining the density of non-cellular plastics - Part 3: Gas pyknometer method (ISO 1183-3)*

ISO 5677, *Testing and characterization of mechanically recycled polypropylene (PP) and polyethylene (PE) for intended use in different plastics processing techniques*

ISO 7765-2, *Plastics film and sheeting — Determination of impact resistance by the free-falling dart method — Part 2: Instrumented puncture test*

ISO 16770, *Plastics — Determination of environmental stress cracking (ESC) of polyethylene — Full-notch creep test (FNCT)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 472:2013 and CEN/TR 15353, and the following 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
typical value
indicative value intended for first contact, e. g. between converter and recycler

Note 1 to entry: Final values to be agreed e.g. between converter and recycler.

3.2 Abbreviations

For the purposes of this document, abbreviated terms related to recyclates given in EN ISO 1043-1 and prEN 18064-1[3]apply.

4 Categorization of polyethylene (PE) applications and requirements

The product families in combination with the relevant converting technologies are given in the dedicated annexes. In here description is given of the intended use(s) of these product families (for example impact resistant application), and for which products can these be used (containers, sheet materials, …).

5 Selection of relevant properties for polyethylene (PE) recyclates

The mandatory characteristics are given in EN 15344.

Relevant characteristics per product family in combination with the relevant production technologies are given in Annex B.

NOTE Next to mandatory characteristics from EN 15344, this can include the optional characteristics given in EN 15344, EN ISO 17855-2 and ISO 10350-1.

6 Typical range for characteristics of product families

The relevant typical characteristics are specified in Annex B, which provides typical values (min/max values or a range as applicable) for the relevant characteristics for that product family in combination with the relevant converting technologies. This information is intended to be used for material selection by buyers of recyclate.

[3] Under preparation.

NOTE This part is not intended for use as a specification system, and hence cannot be used as a means to guarantee a certain recyclate quality to a buyer of plastic recyclate.

7 Designation of polyethylene (PE) recyclates

The principle for this designation system is given in prEN 18064-1[4].

This designation provides a code describing how to declare characteristics and related typical values for recyclate materials, intended to be used for a defined category group (product family), enabling effective communication between supplier and purchaser of recyclate materials, based on the intended use (product family in combination with the relevant production technologies).

Annex A provides designatory properties of polyethylene recyclates given in EN ISO 17855-1.

Under A.2.7 examples of designation of a polyethylene thermoplastic material are given.

[4] Under preparation.