ICS 29.035.20, 33.120.10 SLOVENSKÁ TECHNICKÁ NORMA August 2021

STN	**Komunikačné káble Časť 2-24: Spoločné pravidlá na vývoj a konštrukciu Polyetylénové plášťové zmesi**	**STN EN 50290-2-24** 34 7032

Communication cables - Part 2-24: Common design rules and construction - Polyethylene sheathing compounds

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/21

Obsahuje: EN 50290-2-24:2021

Oznámením tejto normy sa od 19.01.2024 ruší
STN EN 50290-2-24 (34 7032) z augusta 2002

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50290-2-24

April 2021

ICS 29.035.20; 33.120.10

Supersedes EN 50290-2-24:2002 and all of its amendments and corrigenda (if any)

English Version

Communication cables - Part 2-24: Common design rules and construction - Polyethylene sheathing compounds

Câbles de communication - Partie 2-24: Règles de conception communes et construction - Mélanges pour gaines en polyéthylène

Kommunikationskabel - Teil 2-24: Gemeinsame Regeln für Entwicklung und Konstruktion - PE-Mantelmischungen

This European Standard was approved by CENELEC on 2021-01-19. CENELEC 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 50290-2-24:2021 E

Contents **Page**

EN 50290-2-24:2021 (E)

European foreword

This document (EN 50290-2-24:2021) has been prepared by CLC/TC 46X “Communication cables”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2022–01–19
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2024–01–19

This document supersedes EN 50290-2-24:2002 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

1 Scope

This document gives specific requirements for polyethylene sheathing compounds, as given in Table 1, for use in inner and outer sheathing of communication cables including fibre optic cables.

It is expected to be read in conjunction with EN 50290-2-20, the product standards EN 50407 series, EN 50117 series, EN 60794 series and other applicable product standards.

Using raw material and type test data as outlined in this document, the raw material supplier will have sufficient data to demonstrate compliance and warrant that the material is suitable for the specified application.

There are several routes used for manufacture of polyethylene and as a consequence a number of different types of polyethylene are defined as given in Table 1.

Table 1 — Polyethylene materials (informative)

Abbreviation	Material type	Reactor process	Polymer structure	Maximum operating temperature[a] °C
LDPE[b]	Low density polyethylene	High pressure/ temperature radical reaction	Long chain branched	+70
LLDPE	Linear low density polyethylene	Low pressure/ temperature catalytic reaction	Significant short chain branching	+80
MDPE	Medium density polyethylene	Low pressure/ temperature catalytic reaction	Short chain branched	+80
HDPE	High density polyethylene	Low pressure/ temperature catalytic reaction	Limited short chain branching	+80

[a] Further guidance on operating temperature is contained in EN 50290-2-20

[b] Upper process capability for density 0,930 g/ml. Normally density range 0,917–0,925 g/ml

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 50289-4-17, *Communication cables - Specifications for test methods - Part 4-17: Test methods for UV resistance evaluation of the sheath of electrical and optical fibre cable*

EN 50290-2-20, *Communication cables - Part 2-20: Common design rules and construction - General*

EN 60811-406, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 406: Miscellaneous tests - Resistance to stress cracking of polyethylene and polypropylene compounds (IEC 60811-406)*

EN 60811-407, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 407: Miscellaneous tests - Measurement of mass increase of polyethylene and polypropylene compounds (IEC 60811-407)*

EN 60811-501, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 501: Mechanical tests - Tests for determining the mechanical properties of insulating and sheathing compounds (IEC 60811-501)*

EN 60811-511, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 511: Mechanical tests - Measurement of the melt flow index of polyethylene compounds (IEC 60811-511)*

EN 50290-2-24:2021 (E)

EN 60811-605, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 605: Physical tests - Measurement of carbon black and/or mineral filler in polyethylene compounds (IEC 60811-605)*

EN 60811-606, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 606: Physical tests - Methods for determining the density (IEC 60811-606)*

EN 60811-607, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 607: Physical tests - Test for the assessment of carbon black dispersion in polyethylene and polypropylene (IEC 60811-607)*

EN ISO 868, *Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868)*

EN ISO 11357-6, *Plastics - Differential scanning calorimetry (DSC) - Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT) (ISO 11357-6)*

ISO 974, *Plastics — Determination of the brittleness temperature by impact*

ISO 11359-2, *Plastics — Thermomechanical analysis (TMA) — Part 2: Determination of coefficient of linear thermal expansion and glass transition temperature*

DIN 51900-1, *Testing of solid and liquid fuels - Determination of gross calorific value by the bomb calorimeter and calculation of net calorific value - Part 1: Principles, apparatus, methods*