SLOVENSKI STANDARD
SIST EN 50290-2-24:2002/A1:2009

01-januar-2009

Komunikacijski kabli - 2-24. del: Skupna pravila za naļ rtovanje in konstrukcija - PE -oplaġļ enje (polietilensko)

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

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

Câbles de communication - Partie 2-24: Règles de conception communes et construction - Polyéthylène pour gainage

Ta slovenski standard je istoveten z: EN 50290-2-24:2002/A1:2008

ICS:

29.035.20	Plastiļ ni in gumeni izolacijski materiali	Plastics and rubber insulating materials
33.120.10	Koaksialni kabli. Valovodi	Coaxial cables. Waveguides

SIST EN 50290-2-24:2002/A1:2009 en,fr,de

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50290-2-24/A1

November 2008

ICS 29.035.20; 33.120.10

English version

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

Câbles de communication - Partie 2-24: Règles de conception communes et construction - Polyéthylène pour gainage

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

This amendment A1 modifies the European Standard EN 50290-2-24:2002; it was approved by CENELEC on 2008-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 Central Secretariat or to any CENELEC member.

This amendment 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 Central Secretariat has the same status as the official versions.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 50290-2-24:2002/A1:2008 E

Foreword

This amendment was prepared by a Joint Working Group of the Technical Committees CENELEC TC 46X, Communication cables, and CENELEC TC 86A, Optical fibres and optical fibre cables.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to EN 50290-2-24:2002 on 2008-11-01.

The purpose of this amendment is to align EN 50290-2-24:2002 with new grades available.

The following dates were fixed:

– latest date by which the amendment has to be implemented at national level by publication of an identical standard or by endorsement	(dop)	2009-11-01
– latest date by which the national standards conflicting with the amendment have to be withdrawn	(dow)	2011-11-01

3 Requirement

Replace the existing Tables 1 and 2 by the following:

Table 1 – Black PE sheathing compound

Characteristics		Test method	Unit	Grades [a] (see Note 1)			
				LD	MD	HD	LLD
1	Maximum rated temperature at cable for which the compound can be used		° C	70	80	80	80
2	Density [a] (without carbon black)	EN 60811-1-3, Clause 8	g/cm³	< 0,930	≥ 0,930 ≤ 0,940	> 0,940	< 0,930
3	Melt flow index [a] (see Note 2)	EN 60811-4-1, Clause 10	g/10 min	≤ 0,4	≤ 2,0	≤ 2,0	≤ 3,0
4	Mechanical characteristics	EN 60811-1-1, 9.2					
4.1	In state of delivery						
	Tensile strength – median, min.		MPa	10	18	18	16
	Elongation at break – median, min.		%	300	300	300	500
4.2	After ageing	EN 60811-1-2, 8.1					
	Ageing conditions – temperature		° C	100 ± 2	100 ± 2	100 ± 2	100 ± 2
	– duration		h	24 x 10	24 x 10	24 x 10	24 x 10
	Elongation at break – median, min.		%	300	300	300	500
5	Shrinkage [b]	EN 60811-1-3, Clause 11					
	Test conditions						
	– sample length (if not otherwise specified)		mm	200	200	200	200
	– temperature		° C	c	c	c	c
	– duration		h	c	c	c	c
	Result to be obtained						
	– shrinkage, max.		%	c	c	c	c

Table 1 – Black PE sheathing compound *(continued)*

Characteristics		Test method	Unit	Grades [a] (see Note 1)			
				LD	MD	HD	LLD
6	Performance after pre-conditioning (for sheath in direct contact with filling compound)	Annex A					
	Test conditions – temperature		° C	60/70 ± 2	60/70 ± 2	60/70 ± 2	60/70 ± 2
	– duration		h	7 x 24	7 x 24	7 x 24	7 x 24
	Result to be obtained Tensile strength – median, min.		MPa	10	18	18	16
	Elongation at break – median, min.		%	300	300	300	500
7	Carbon black content [d]	EN 60811-4-1, Clause 11	%	2,5 ± 0,5	2,5 ± 0,5	2,5 ± 0,5	2,5 ± 0,5
8	Carbon black dispersion [d]	Annex B		To meet	To meet	To meet	To meet
9	Stress cracking [d] (see Note 3)	EN 60811-4-1, Clause 8, Procedure B		> 1 000 h	> 1 000 h	> 1 000 h	> 1 000 h

NOTE 1 In order to differentiate LD from LLD-Polyethylene the melting point according to ISO 11357-3 [e] can be measured. The melting point of LD is < 120 °C and of LLD is ≥ 120 °C.

NOTE 2 If required, MFI may be measured on sheath with other values to be specified.

NOTE 3 Stress cracking test on raw material may not be sufficient to guarantee a stress cracking performance on finished product. Therefore an additional test has to be performed either on complete cable or on a piece of sheath taken from complete cable, in accordance with the test methods described in Annex C.

[a] To be given by the supplier.

[b] For special application.

[c] In the relevant cable specification.

[d] For inner sheath applications, non-black PE compounds can be used, then items 7, 8, 9 may not apply.

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

Table 2 – Coloured PE sheathing compounds

Characteristics		Test method	Unit	Grades [a] (see Note 1)			
				LD	MD	HD	LLD
1	Maximum rated temperature at cable for which the compound can be used		° C	70	80	80	80
2	Density [a]	EN 60811-1-3, Clause 8	g/cm³	< 0,930	≥ 0,930 ≤ 0,940	> 0,940	< 0,930
3	Melt flow index [a] (see Note 2)	EN 60811-4-1, Clause 10	g/10 min	≤ 0,4	≤ 2,0	≤ 2,0	≤ 3,0
4	Mechanical characteristics	EN 60811-1-1, 9.2					
4.1	In state of delivery Tensile strength – median, min.		MPa	10	18	18	16
	Elongation at break – median, min.		%	300	300	300	500
4.2	After ageing	EN 60811-1-2, 8.1					
	Ageing conditions – temperature		° C	100 ± 2	100 ± 2	100 ± 2	100 ± 2
	– duration		h	24 x 10	24 x 10	24 x 10	24 x 10
	Elongation at break – median, min.		%	300	300	300	500
5	Shrinkage [b]	EN 60811-1-3, Clause 11					
	Test conditions						
	– sample length (if not otherwise specified)		mm	200	200	200	200
	– temperature		° C	c	c	c	c
	– duration		h	c	c	c	c
	Result to be obtained						
	– shrinkage, max.		%	c	c	c	c

Table 2 – Coloured PE sheathing compounds *(continued)*

Characteristics		Test method	Unit	Grades [a] (see Note 1)			
				LD	MD	HD	LLD
6	Performance after pre-conditioning (for sheath in direct contact with filling compound)	Annex A					
	Test conditions – temperature		° C	60/70 ± 2	60/70 ± 2	60/70 ± 2	60/70 ± 2
	– duration		h	7 x 24	7 x 24	7 x 24	7 x 24
	Result to be obtained Tensile strength – median, min.		MPa	10	18	18	16
	Elongation at break – median, min.		%	300	300	300	500
7	Stress cracking (see Note 3)	EN 60811-4-1, Clause 8, Procedure B		> 1 000 h	> 1 000 h	> 1 000 h	> 1 000 h

NOTE 1 In order to differentiate LD from LLD-Polyethylene the melting point according to ISO 11357-3 [d] can be measured. The melting point of LD is < 120 °C and of LLD is ≥ 120 °C.

NOTE 2 If required, MFI may be measured on sheath with other values to be specified.

NOTE 3 Stress cracking test on raw material may not be sufficient to guarantee a stress cracking performance on finished product. Therefore an additional test has to be performed either on complete cable or on a piece of sheath taken from complete cable, in accordance with the test methods described in Annex C.

[a] To be given by the supplier.

[b] For special application.

[c] In the relevant cable specification.

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