SLOVENSKI STANDARD

SIST EN 50363-4-1:2006

maj 2006

Materiali za izoliranje, oplaščenje in prevleke nizkonapetostnih energetskih kablov – 4-1. del: Polivinilkloridne (PVC) mase za oplaščenje

Insulating, sheathing and covering materials for low voltage energy cables – Part 4-1: PVC sheathing compounds

ICS   29.035.20; 29.060.20

Referenčna številka
SIST EN 50363-4-1:2006(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50363-4-1

November 2005

ICS 29.035.20

English version

Insulating, sheathing and covering materials
for low voltage energy cables
Part 4-1: PVC sheathing compounds

Matériaux pour enveloppe isolante,
gainage et revêtement pour les câbles
d'énergie basse tension
Partie 4-1: Mélanges PVC pour gaine

Isolier-, Mantel- und
Umhüllungswerkstoffe für
Niederspannungskabel und -leitungen
Teil 4-1: PVC-Mantelmischungen

This European Standard was approved by CENELEC on 2005-11-01. 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 Central Secretariat 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 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

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Ref. No. EN 50363-4-1:2005 E

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50363-4-1 on 2005-11-01.

EN 50363 (in all its parts) supersedes the equivalent information at present in HD 21.1 S4, HD 21.14 S1, HD 22.1 S4, HD 22.10 S1, HD 22.14 S2 and prHD 21.15 S1. The existing information in these HDs will be deleted at the next maintenance review.

EN 50363-4-1 should be read in conjunction with EN 50363-0.

The following dates were fixed:

– latest date by which the EN has to be implemented
  at national level by publication of an identical
  national standard or by endorsement   (dop)   2006-11-01

– latest date by which the national standards conflicting
  with the EN have to be withdrawn   (dow)   2007-11-01

Contents

1 Scope

This part of EN 50363 specifies the requirements for the physical properties of the PVC sheathing compounds given in Table 1. The relevant test methods are given in EN 60811 series.

NOTE   This part of EN 50363 is to be read in conjunction with EN 50363-0.

Table 1 – Types of PVC sheathing compound

Type	Maximum cable operating temperature °C	General application
TM 1	70	General purpose for fixed installation cables. May be suitable for oversheathing of cables with a metallic layer operating at a maximum conductor temperature of 80 °C
TM 2	70	Flexible general purpose
TM 3	90	Flexible for high temperature use
TM 4	70	Flexible for low temperature use
TM 5	70	Oil-resistant flexible

2 Normative references

For the purposes of this part of EN 50363, the requirements of EN 50363-0, Clause 2, apply with regard to normative references.

3 Definitions

For the purposes of this part of EN 50363, the definitions given in EN 50363-0, Clause 3, apply.

4 Properties

Each compound shall meet the particular requirements listed in Table 2, when using the test methods referenced in columns 4 and 5.

NOTE   For cross-references to the latest editions of the test method standards see Table 2 of EN 50363-0.

Table 2 – Requirements for the tests for PVC sheathing compounds

1	2	3	4	5	6	7	8	9	10
Ref No	Test	Unit	Test method described in EN 60811 [a]		Type of compound				
			Section	Clause	TM 1	TM 2	TM 3	TM 4	TM 5
1	**Mechanical properties**								
1.1	Properties before ageing		1-1	9.2					
1.1.1	Values to be obtained for the tensile strength:								
	- median, min.	N/mm²			12,5	10,0	10,0	10,0	10,0
1.1.2	Values to be obtained for the elongation at break:								
	- median, min.	%			125	150	150	150	150
1.2	Properties after ageing in air oven		1-2	8.1					
1.2.1	Ageing conditions:								
	- temperature	°C			80 ± 2	80 ± 2	135 ± 2	80 ± 2	80 ± 2
	- duration of treatment	h			7 x 24	7 x 24	14 x 24	7 x 24	7 x 24
1.2.2	Value to be obtained for the tensile strength:								
	- median, min.	N/mm²			12,5	10,0	10,0	10,0	10,0
	- variation, max.	%			± 20	± 20	± 25	± 20	± 20
1.2.3	Values to be obtained for the elongation at break:								
	- median, min.	%			125	150	150	150	150
	- variation, max.	%			± 20	± 20	± 25	± 20	± 20
1.3	Properties after immersion in mineral oil		2-1	10					
1.3.1	Test conditions:								
	- oil temperature	°C			-	-	-	-	90 ± 2
	- duration of immersion in oil	h			-	-	-	-	7 x 24
1.3.2	Values to be obtained for the tensile strength:								
	- variation, max.	%			-	-	-	-	± 30

Table 2 – Requirements for the tests for PVC sheathing compounds *(continued)*

1	2	3	4	5	6	7	8	9	10
Ref No	Test	Unit	Test method described in EN 60811 [a]		Type of compound				
			Section	Clause	TM 1	TM 2	TM 3	TM 4	TM 5
1.3.3	Value to be obtained for the elongation at break:								
	- variation, max.	%			-	-	-	-	± 30
2	**Loss of mass test**		3-2	8.2					
2.1	Ageing conditions:								
	- temperature	°C			80 ± 2	80 ± 2	115 ± 2	80 ± 2	80 ± 2
	- duration of treatment	h			7 x 24	7 x 24	10 x 24	7 x 24	7 x 24
2.2	Values to be obtained for the loss of mass, max.	mg/cm²			2,0	2,0	1,5	2,0	2,0
3	**Heat shock test**		3-1	9.2					
3.1	Test conditions:								
	- temperature	°C			150 ± 2	150 ± 2	150 ± 2	150 ± 2	150 ± 2
	- duration of treatment	h			1,0	1,0	1,0	1,0	1,0
3.2	Result to be obtained				[b]	[b]	[b]	[b]	[b]
4	**Pressure test at high temperature**		3-1	8.2					
4.1	Test conditions:								
	- force exerted by the blade	N	3-1	8.2.4	[c]	[c]	[c]	[c]	[c]
	- duration of heating under load	h	3-1	8.2.5	[c]	[c]	[c]	[c]	[c]
	- temperature	°C			80 ± 2	70 ± 2	90 ± 2	70 ± 2	70 ± 2
4.2	Result to be obtained:								
	- median of the depth of indentation, maximum	%			50	50	50	50	50
5	**Bending test at low temperature**		1-4	8.2					
5.1	Test conditions:								
	- temperature	°C			- 15 ± 2 [c]	- 15 ± 2 [c]	- 15 ± 2 [c]	- 30 ± 2 [c]	- 15 ± 2 [c]
	- period of application of low temperature	h	1-4	8.2.3					