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Communication cables - Part 2-29: Common design rules and construction - Crosslinked polyethylene insulation compounds: instrumentation, control and field bus cables

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

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Communication cables - Part 2-29: Common design rules and construction - Crosslinked polyethylene insulation compounds: instrumentation, control and field bus cables

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Kommunikationskabel - Teil 2-29: Gemeinsame Regeln für Entwicklung und Konstruktion - Vernetzte PE-Isolier-Mischungen

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European foreword

This document (EN 50290-2-29:2016) has been 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 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)	2017-07-22
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2019-07-22

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This document supersedes EN 50290-2-29:2002.

EN 50290-2-29:2016 (E)

1 Scope

This Part 2-29 of EN 50290 gives specific requirements for Crosslinked Polyethylene (XLPE) compounds to be used for the insulation of instrumentation, control and field bus cables. There are several routes used for manufacture of XLPE insulated cables and as a consequence a number of different types of polyethylene compound may be specified. The compounds required for the different manufacturing processes are described (Table 1). The unstabilised materials require antioxidant to be added during the cable extrusion process.

Table 1 — XLPE Materials

Material	Stabilisation	Manufacturing process
PE	None	Base polymer for irradiation/one step silane
PE-S	Yes	Stabilised compound for irradiation/one step silane
SXPE	None	Silane grafted compound or copolymer for two step process
SXPE-S	Yes	Stabilised silane grafted compound or copolymer for two step process

It is essential to read this European Standard in conjunction with Part 2-20 of EN 50290, the product standards EN 50288-7 and EN 61158 and other applicable product standards.

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50288-7, *Multi-element metallic cables used in analogue and digital communication and control — Part 7: Sectional specification for instrumentation and control cables*

EN 60216 (all parts), *Electrical insulating materials — Thermal endurance properties (IEC 60216)*

EN 60811-401, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 401: Miscellaneous tests — Thermal ageing methods — Ageing in an air oven (IEC 60811-401)*

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 60811-502, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 502: Mechanical tests — Shrinkage test for insulations (IEC 60811-502)*

EN 60811-507, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 507: Mechanical tests — Hot set test for cross-linked materials (IEC 60811-507)*

EN 60811-510, *Electric and optical fibre cables — Test methods for non-metallic materials — Part 510: Mechanical tests — Methods specific to polyethylene and polypropylene compounds — Wrapping test after thermal ageing in air (IEC 60811-510)*

EN 61158 (all parts), *Industrial communication networks — Fieldbus specifications (IEC 61158)*

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

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

EN ISO 1183 (all parts), *Plastics — Methods for determining the density of non-cellular plastics (ISO 1183)*

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 6502, *Rubber — Guide to the use of curemeters*

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