2016

Üntel is ready for CPR

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01.11.2016

Construction Products Regulation

What is the CPR?

The Construction Products Regulation (CPR) lays down conditions for the placing or making available on the market of construction products by establishing harmonized rules on how to express the performance of construction products in relation to their essential characteristics and on the use of CE marking on those products and harmonized rules for the marketing of construction products in the EU.

The Regulation provides a common technical language to assess the performance of construction products. It ensures that reliable information 'on the performance of products used in structures' is available to professionals, public authorities, and consumers, so they can compare the performance of products from different manufacturers in different countries. This is achieved by harmonizing the rules for how the construction products and cables are tested and classified.

CPR is an acronym for the European Construction Product Regulation (CPR). Any product manufactured and launched on the market that will constitute a permanent part of a building, and which performance will affect the performance of the Building.

The fire properties of cables are important for fire safety in buildings and due to this importance cables have been included in the European classification system under the CPR (Construction Products Regulation) and EN 50575:2014 standard describes "Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements".

The Regulation has the following objectives:

- ✓ Safety in case of fire
- ✓ Increase safety in buildings
- ✓ Safety and accessibility in use
- ✓ Ensure health protection of individuals
- ✓ Hygiene, health and the environment
- ✓ Promote environmental protection
- ✓ Reduce material wastage
- ✓ Reduce energy consumption
- ✓ Mechanical resistance and stability
- ✓ Energy economy and heat retention
- ✓ Sustainable use of natural resources

For detailed information you can refer to below web-links;

http://eur-lex.europa.eu/eli/reg/2011/305/oj

https://ec.europa.eu/growth/sectors/construction/product-regulation_en

Power, control and communication cables which are permanently installed in structures is governed by EU Regulation 305/2011 (known as the "Construction Products Regulation"). The Construction Products Guideline 89/10/EEC has been superseded by the Construction Products Regulation (CPR) 305/2011.

The Regulation **does not apply to lift cables, cables inside machinery and cables for use in industrial plant.**

The regulation does not cover the cables who has special standards and specifications and also does not apply to **marine, shipboard and offshore** cables as well.

The EU Construction Products Regulation defines the conditions for CE marking and also requires manufacturers to issue a Declaration of Performance regarding the following key product features derived from the protection goals: fire safety (flame propagation, heat development, smoke production, acid formation, and flaming droplets) and the absence of harmful constituents.

EN 50575:2014 standard describes "Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements". Effective 1 July 2016, cable manufacturers may include CE marking on those of their products that have been tested and certified by a notified body, and issue a corresponding Declaration of Performance.

Starting from 01 July 2017, the inclusion of CE marking and the issuing of a Declaration of Performance will become mandatory.

The Declaration of Performance certifies compliance with the fire classes and thus forms the requirement for using the cables for the applications defined by the EU countries.

Cables offering insulation and total system integrity **(resistance to fire)** will be treated in a separate standard to be harmonized in the future. Accordingly, they are neither governed by the current implementation of the Construction Products Regulation (CPR) nor is an application of the CPR to these kinds of cables expected before 2017.

What are Construction products?

Construction products are defined as “any product or kit which is produced and placed on the market for incorporation in a **permanent manner** in construction works or parts thereof and the performance of which has an effect on the performance of the construction works with respect to the basic requirements for construction works”. Buildings are divided into the categories of construction engineering (single and multi-family houses, commercial buildings, hospitals, car parks, schools, etc.) and civil engineering (tunnels, bridges, underground gas and water supplies, etc.). **Exceptions to this are self-contained systems within a building**, like products installed in an elevator system. **Elevator-lift cables** are not considered as construction products because these cables are components of the elevator system.

Cable Types in Construction products

Electric cable

all power, control and communication cables, including optical fiber cables and hybrid cables which are a combination of two or more of these cable types.

Power cable

assembly comprising one or more insulated conductor(s), together with any coverings and protective layers, used for the transmission or supply of electrical energy.

Control cable

assembly comprising insulated conductors, together with any coverings and protective layers, used for the transmission of control, measuring and indication signals in electric installations.

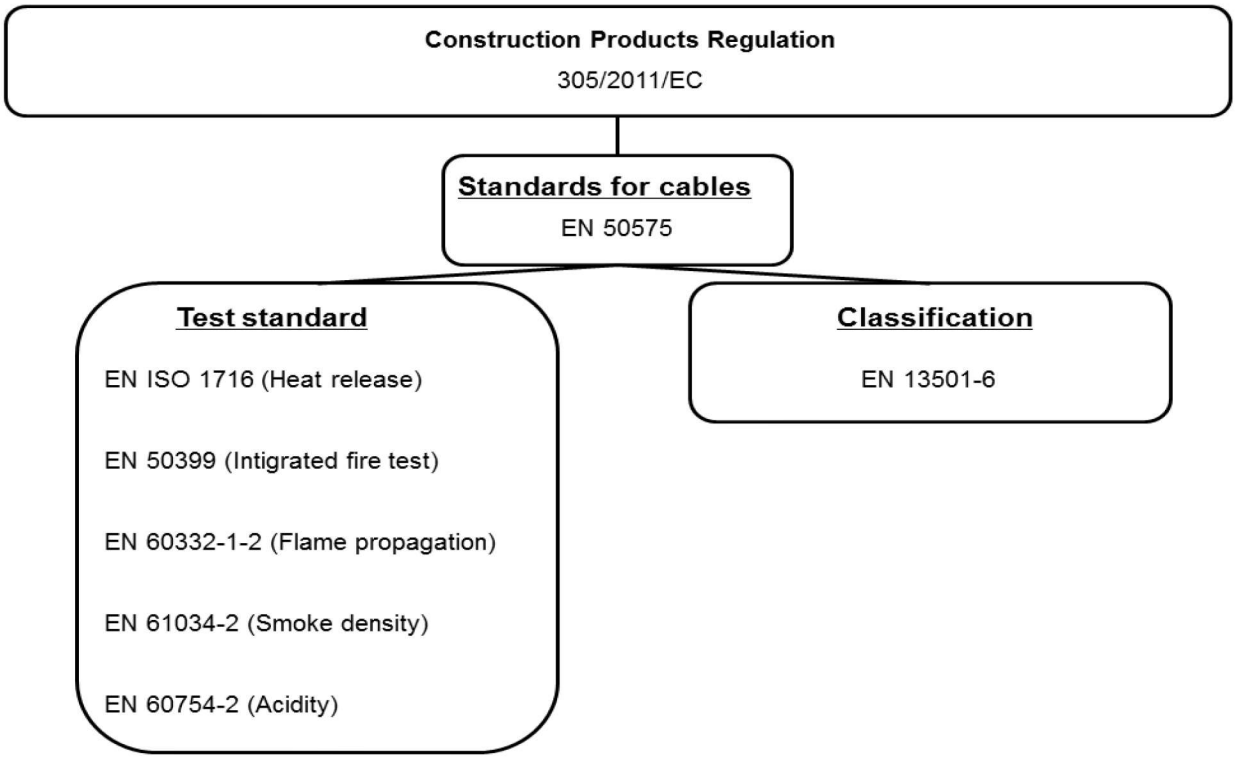
Communication cable

assembly of suitably insulated coaxial conductors or twisted pairs of insulated conductors fabricated to meet transmission, mechanical and environmental requirements, and sufficient to allow conveyance of information between two points with the minimum of radiation.

Optical fiber cable

Assembly comprising one or more optical fibers or fiber bundles inside a common covering designed to protect them against mechanical stresses and other environmental influences while retaining the transmission quality of the fibers.

Requirements for cables as a construction product



EN 13501-6, Fire classification of construction products and building elements — Part 6: Classification using data from reaction to fire tests on electric cables

EN ISO 1716, Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value) (ISO 1716)

EN 50399, Common test methods for cables under fire conditions — Heat release and smoke production measurement on cables during flame spread test — Test apparatus, procedures, results

EN 60332-1-2, Tests on electric and optical fiber cables under fire conditions — Part 1-2: Test for vertical flame propagation for a single insulated wire or cable — Procedure for 1 kW pre-mixed flame (IEC 60332-1-2)

EN 60754-2, Test on gases evolved during combustion of materials from cables — Part 2: Determination of acidity (by pH measurement) and conductivity (IEC 60754-2)

EN 61034-2, Measurement of smoke density of cables burning under defined conditions — Part 2: Test procedure and requirements (IEC 61034-2)

EN 50399 Common test methods for cables under fire conditions

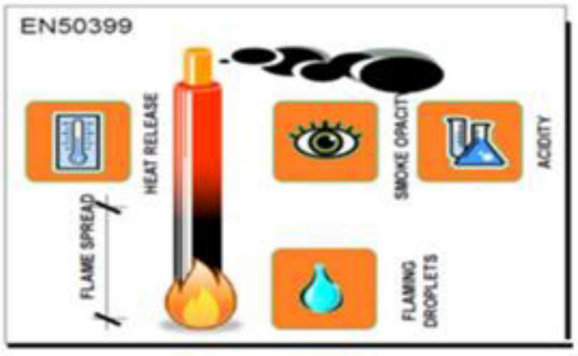
EN 50399 specifies the test apparatus and test procedures for the assessment of the reaction to fire performance of cables to enable classification under the Construction Products Directive to be achieved.

The test method describes an intermediate scale fire test of multiple cables mounted on a vertical cable ladder and is carried out with a specified ignition source to evaluate the burning behavior of such cables and enable a direct declaration of performance.

The following parameters may be determined under defined conditions during the test:

- flame spread;
- heat release rate;
- total heat release;
- smoke production rate;
- total smoke production;
- fire growth rate index;
- occurrence of flaming droplets/particles

EuroClass	Test method	Classification criteria
Aca	EN ISO 1716	Gross calorific potential
B1ca	FIPEC20 Scen 2 EN 60332-1-2	Flame spread, Total heat release, FIGRA, Combusted length of the cable
B2ca	FIPEC20 Scen 1 EN 60332-1-2	Flame spread, Total heat release, FIGRA, Combusted length of the cable
Cca	FIPEC20 Scen 1 EN 60332-1-2	Flame spread, Total heat release, FIGRA, Combusted length of the cable
Dca	FIPEC20 Scen 1 EN 60332-1-2	Flame spread, Total heat release, FIGRA, Combusted length of the cable
Eca	EN 60332-1-2	Combusted length of the cable
Fca	No performance determined	



Euro Classification of Cables:

The fire behavior classes are summarized in the following table, which classifies the requirements from Aca (non-flammable) to B1ca or B2ca (very high), Cca (high), Dca (moderate), Eca (low) and Fca (no requirement). **The index "ca" stands for cable**.

Digit 1: Fire propagation and heat emission performance, cable class (Aca, B1ca, B2ca, Cca, Dca, Eca, Fca).

Aca	They do not contribute to the fire.
B1ca -B2ca	Minimum contribution to the fire.
Cca – Dca – Eca	Combustible, they contribute the fire, from lower to higher contribution.
Fca	Undetermined contribution properties.

Digit 2: Smoke emission properties (s1, s1a, s1b, s2, s3).

This classification provides information about the opacity of the emitted smoke (s: smoke).

s1	Little smoke production and slow smoke propagation.
s1a	Transmittance >80%.
s1b	Transmittance >60% and <80%.
s2	Average smoke production and propagation.
s3	None of the above.

Digit 3: Burning droplets/particles (d0, d1, d2).

This classification provides information about the dripping of burning material during the fire (d: droplet).

d0	No burning droplets or particles.
d1	No burning droplets or particles that last more than 10 seconds.
d2	None of the above.

Digit 4 Acidity performance (a1, a2, a3) in addition applying the test described in standard EN 50267-2-3.

This classification provides information about the emission of acid gases during the fire (a: acidity).

a1	Conductivity < 2,5 µS/mm and pH > 4,3.
a2	Conductivity < 10 µS/mm and pH > 4,3.
a3	None of the above.

This performance code (fire reaction class and additional classification) according to the CPR must appear in the cable marking and in packing together with the rest of the marks. This classification system ranks equally in all European Union countries.

Table 1 — Classes of reaction to fire performance for electric cables

Class	Test method(s)	Classification criteria	Additional classification
A_{ca}	EN ISO 1716	*PCS* ≤ 2,0 MJ/kg (1)	
$B1_{ca}$	EN 50399 (30 kW flame source) *and*	*FS* ≤ 1,75 m *and* THR_{1200s} ≤ 10 MJ *and* *Peak HRR* ≤ 20 kW *and* *FIGRA* ≤ 120 Ws^{-1}	Smoke production (2,5) and Flaming droplets/particles (3) and Acidity (4)
	EN 60332–1-2	*H* ≤ 425 mm	
$B2_{ca}$	EN 50399 (20,5 kW flame source) *and*	*FS* ≤ 1,5 m; *and* THR_{1200s} ≤ 15 MJ; *and* *Peak HRR* ≤ 30 kW; *and* *FIGRA* ≤ 150 Ws^{-1}	Smoke production (2,6) and Flaming droplets/particles (3) and Acidity (4)
	EN 60332–1-2	*H* ≤ 425 mm	
C_{ca}	EN 50399 (20,5 kW flame source) *and*	*FS* ≤ 2.0 m; *and* THR_{1200s} ≤ 30 MJ; *and* *Peak HRR* ≤ 60 kW; *and* *FIGRA* ≤ 300 Ws^{-1}	Smoke production (2,6) and Flaming droplets/particles (3) and Acidity (4)
	EN 60332–1-2	*H* ≤ 425 mm	
D_{ca}	EN 50399 (20,5 kW flame source) and	THR_{1200s} ≤ 70 MJ; *and* *Peak HRR* ≤ 400 kW; *and* *FIGRA* ≤ 1 300 Ws^{-1}	Smoke production (2,6) and Flaming droplets/particles (3) and Acidity (4)
	EN 60332–1-2	*H* ≤ 425 mm	
E_{ca}	EN 60332–1-2	*H* ≤ 425 mm	
F_{ca}	No performance determined		

Class	Test method(s)	Classification criteria	Additional classification

(1) For the product as a whole, excluding metallic materials, and for any external component (i.e. sheath) of the product.

(2) **s1** = TSP_{1200s} ≤ 50 m^2 *and Peak SPR* ≤ 0.25 m^2/s

s1a = **s1** and transmittance in accordance with EN 61034–2 ≥ 80 %

s1b = **s1** and transmittance in accordance with EN 61034–2 ≥ 60 % < 80 %

s2 = TSP_{1200s} ≤ 400 m^2 *and Peak SPR* ≤ 1,5 m^2/s

s3 = not s1 or s2

(3) **d0** = No flaming droplets/particles within 1200 s; **d1** = No flaming droplets/ particles persisting longer than 10 s within 1200 s; **d2** = not d0 or d1.

(4) EN 50267–2-3: **a1** = conductivity < 2,5 µS/mm *and pH* > 4,3; **a2** = conductivity < 10 µS/mm *and pH* > 4,3; **a3** = not a1 or a2. No declaration = No Performance Determined.

(5) The smoke class declared for class $B1_{ca}$ cables shall originate from the test according to EN 50399 (30 kW flame source)

(6) The smoke class declared for class $B2_{ca}$, C_{ca}, D_{ca} cables shall originate from the test according to EN 50399 (20,5 kW flame source)

Assessment and Verification of Constancy of Performances

Depending on the main class of a product, a specific conformity procedure (AVPC) must be applied by the manufacturer. The systems 1+, 3 and 4 have been assigned for cable products. Depending on the system, different tasks are required of the manufacturer and the notified body. These tasks include production control and sample testing by the manufacturer, as well as an evaluation of the product performance, ongoing monitoring and product audits by the notified body.

SYSTEM 1+

Classes B2ca and Cca–**Third Party Notified Body** issues a Certificate based on:
•Initial Type Test
•Factory Audit and regular factory production control (2 times per year)
•Audit Test (once per year on up to4 families) on product taken from the warehouse

SYSTEM 3

Classes Dca and Eca-**Third party Notified Laboratory** issues a Laboratory report based on:
•Initial Type Test on product sent by Manufacturer

SYSTEM 4

Class Fca – **The producer** prepares and shows on demand an AVCP (similar in future to LVD)

<table>
<tr><th>Euroclass (ca)</th><th>Classification criteria</th><th>Additional criteria</th><th>Assessment and Verification of Constancy of Performance system</th></tr>
<tr><td>A</td><td>EN ISO 1716
Gross heat of combustion</td><td></td><td rowspan="3">1+
initial type-testing and factory inspection and continuous surveillance of factory production control (FPC) with audit testing of samples by 3rd party notified product certification body</td></tr>
<tr><td>B1</td><td rowspan="4">EN 50399
Heat release
Flame spread

EN 60332-1-2
Flame propagation</td><td rowspan="3">Smoke production
(s1, s1a, s1b, s2, s3)
EN 50399/EN 61034-2

Acidity
(a1, a2, a3)
EN 60754-2

Flaming droplets
(d0, d1, d2)
EN 50399</td></tr>
<tr><td>B2</td></tr>
<tr><td>C</td></tr>
<tr><td>D</td><td rowspan="2">3
initial type-testing by 3rd party notified testing laboratory
FPC by manufacturer</td></tr>
<tr><td>E</td><td>EN 60332-1-2
Flame propagation</td><td></td></tr>
<tr><td>F</td><td colspan="2"></td><td>4
initial type-testing and FPC by manufacturer</td></tr>
</table>

Notified body (NB)

Depending on the conformity procedure, an official notified body may be required to perform defined tasks in order for the manufacturer to receive certification. The notified bodies, which are approved by the Member States and confirmed by the EU, conduct the certification tests in accredited laboratories. They also verify conformity at the manufacturers and issue conformity statements if the tests are positive. Such notified bodies must be independent and are authorized in the EU and EEA countries only. They are authorized to perform cable certification following approval by the government authorities and registration in the EU database.

Notified/ Approved Laboratory (NL)

Notified laboratories has to be registered on NANDO (New Approach Notified and Designated Organizations) Information System in order to fully perform all services as a notified product certification and testing laboratory for EN 50575

You can find the complete list at;
http://ec.europa.eu/growth/tools-databases/nando/index.cfm?fuseaction=cp.nb_hs&hs_id=155206&cpr=Y

Applicable Euroclass			
Assessment and Verification of Constancy of Performances - System	1+	3	4
Factory production control	M	M	M
Additional tests on samples taken from factory, in agreement with the determined test plan	M	–	–
Determination and test of the standard product by tests and calculation	NB	NL	M
Initial factory inspection and factory production control	NB	–	–
Factory monitoring inspection and factory production control	NB	–	–
Tests on samples taken before the product is launched onto the market	NB	–	–

NB: Notified Body | NL: Notified/Approved Laboratory | M: Manufacturer

Declaration of performance (DoP) Certification

The key performance characteristics are declared in the mandatory Declaration of Performance (DoP). The manufacturer assumes responsibility for ensuring that the declaration complies with the relevant requirements. The following points must be included in the DoP:

- ✓ Unique identification number of the product type
- ✓ Intended use
- ✓ System for assessment and verification of the constancy of performance
- ✓ Identification number of the notified body
- ✓ Specified performance (performance and harmonized technical specification)

Example of DoP Certificate:

ÜNTEL KABLOLARI
SANAYİ ve TİCARET A.Ş.

DECLARATION OF PERFORMANCE
(DoP) No. 20170005M

CE

1. Unique identification code of the product-type: **YSLY - 300/500 V.**
   Range : According to classification report(s)

2. Batch or Serial Number : **M1 4320 XXYYZZ / M1 4510 XXYYZZ.**

3. Intended use/es of the construction product: **Supply of electricity in buildings and other civil engineering works with the objective of limiting the generation and spread of fire and smoke.**

4. Manufacturer:

ÜNTEL KABLOLARI SANAYI ve TICARET AS
Makine OSB. 6ncı Cad. No.4
41455 Dilovasi - Kocaeli-Turkey

5. System/s of AVCP : **System 3.**

6. Notified body/ies: **NB1783. (Report No: 339943/04-17)**

7. Declared performance/s:
   Harmonised standard: **EN50575:2014 + A1:2016**

Reaction to fire:	Release of dangerous substances:
Eca	NPD

8. The performance of the product identified above is in conformity with the declared performance (s) This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:
Hakan KUBAŞ / Marketing Manager
Dilovasi, 18.05.2017

ÜNTEL KABLOLARI SANAYİ ve TİC. A.Ş.

DOC.NO: KOD : FR 102 REV.0 REV.TARİH: 02.03.2017 SAYFA SAYISI 1 / 1

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CE Certification

The CE marking symbol shall be in accordance with the general principles set out in Article 30 of Regulation (EC) No. 765/2008 and shall be affixed visibly, legibly and indelibly to the product labels affixed to the reels, coils or drums of the power, control and communication cables

CE marking is mandatory if the product are to be placed on the European market. Depending on the compliance system, different requirements apply for the content of the labelling. As a general rule for cables, the marking has to be displayed on the product, the packaging, the labelling or a combination of thereof. The marking must be clearly visible, easily legible and indelibly fixed on the cable reel.

The CE marking shall be affixed before the construction product is placed on the market. It may be followed by a pictogram or any other mark notably indicating a special risk or use.

The CE marking shall be followed by:

- ✓ The last two digits of the year in which it was first affixed;
- ✓ The name and the registered address of the manufacturer, or the identifying mark allowing identification of the name and address of the manufacturer easily and without ambiguity;
- ✓ The unique identification code of the product-type;
- ✓ The reference number of the declaration of performance
- ✓ The class of the performance declared;
- ✓ The dated reference to the harmonized technical specification applied;
- ✓ The identification number of the notified body;
- ✓ The intended use as laid down in the applied harmonized technical specification.

CE **XXXX**	*CE marking, consisting of the "CE"-symbol* *Identification number of the product certification body*
AnyCo Ltd, PO Box 21, B-1050, Brussels, Belgium **14** **(To be given by the manufacturer)**	*Name and the registered address of the manufacturer, or identifying mark* *Last two digits of the year in which the marking was first affixed* *Reference number of the DoP*
EN 50575:2014 **(To be given by the manufacturer)** **Supply of electricity in buildings and other civil engineering works with the objective of limiting the generation and spread of fire and smoke** **Reaction to Fire: $B2_{ca}$-s1,d1,a1** **Dangerous substances: none**	*No. of European Standard applied, as referenced in OJEU* *Unique identification code of the product-type* *Intended use of the product as laid down in the European Standard applied* *Class of performance*

PACKING – LABEL - CE MARKING

According to the product standard, the CE mark shall be applied to the product label in all cases.
The CE marking shall be affixed visibly, legibly and indelibly to the construction product or to a label attached to it. Where this is not possible or not warranted on account of the nature of the product, it shall be affixed to the packaging or to the accompanying documents.

CE mark indicates that the manufacturer takes responsibility for the products conformity with the DoP;

No DoP = No CE mark;

A sample modelling for classification of cable types

The Declaration of Performance certifies compliance with the fire classes and thus forms the requirement for using the cables for the applications defined by the EU countries. Each country will decide how CPR Euroclasses will be used in construction

BUILDING CLASSES AND STRUCTURES		EUROCLASS
Escape routes in buildings	---	B2ca s1 d1 a1
Hospitals	---	B2ca s1 d1 a1
Stores for high risk flammable materials	---	B2ca s1 d1 a1
Day care facilities for children, disabled and elderly people	---	B2ca s1 d1 a1
Buildings and premises	used by more than 100 people	Cca, s1 d2 a1
Buildings including underground flors	---	Cca, s1 d2 a1
Assembly buildings gathering places	more than 200 people	Cca, s1 d2 a1
Retail buildings & shops	more than 800 m^2	Cca, s1 d2 a1
Office administration	more than 400 m^2	Cca, s1 d2 a1
Tower and high rise buildings	higher than 22 m	Cca, s1 d2 a1
Restaurants & hotels	---	Cca, s1 d2 a1
Schools & universities or similar facilities	---	Cca, s1 d2 a1
Medium fire risk buildings	---	Dca - s3,d2,a3
Isolated buildings and other buildings	up to 7 m high	Eca
Low fire risk buildings	---	Eca
Individual residental houses with max 2 floors	---	Eca

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