



1ST PVC4CABLES
CONFERENCE

SUSTAINABILITY,
INNOVATION, MARKET:
THE NEW HORIZONS OF THE
PVC CABLES INDUSTRY

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Electric cables and the Construction Products Regulation

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an  platform



CONTENT

- From the CPD to the CPR
- Classes for reaction to fire performance of cables
- AVCP – DoP – CE marking
- Standardisation
- Summing up

From the CP Directive... ... to the CP Regulation



1. Why not only the LVD ?

- Electric cables are essentially covered by the **LVD** "Low voltage directive" 2014/35, which essential requirements are:
 - Electrical equipment must be constructed in accordance with good engineering practice
 - Electrical equipment does not endanger the safety of persons, domestic animals or property when properly installed

2. 2 aspects not covered, with ref. to construction products: fire safety and release of dangerous substances (*in addition: RoHS, REACH*)

From the CP Directive... ... to the CP Regulation



1. Repealed directive 89/106

- Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the MS relating to construction products (89/106/EEC)

2. Repealing regulation 305/2011 (*co-existence until 30 June 2017*)

- Regulation (EU) 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products

From the CP Directive... ... to the CP Regulation



- applicable to all MS
 - sets aims and requirements
 - sets an implementation process
 - national authorities resp. for national regulation in line with the directive (i.e. transposition)
- immediately applicable and enforceable by law in all MS
 - MS still competent for levels of performance
 - MS responsible for legal and competent authorities

Directive

Regulation

From the CP Directive... ... to the CP Regulation



Scope of regulation 305/2011 *(in brief)*

- Common language applicable to all construction products
- Reference to 7 BWR (basic requirements for construction works):
 - mechanical resistance and stability
 - **safety in case of fire**
 - **hygiene, health and the environment**
 - safety and accessibility in use
 - protection against noise
 - energy economy and heat retention
 - sustainable use of natural resources

Classes of reaction to fire performance for electric cables



1. Commission decision 2006/751 (repealed)

- Commission Decision of 27 October 2006 amending Decision 2000/147 implementing Council Directive 89/106/EEC as regards the classification of the reaction-to-fire performance of construction products (i.e. classes of reaction to fire performance for electric cables)

2. Commission delegated regulation 2016/364

- ... on the classification of the reaction to fire performance of construction products pursuant to Regulation 305/2011

Classes of reaction to fire performance for electric cables

Class	Test method(s)	Classification criteria	Additional classification
A_{ca}	EN ISO 1716	$PCS \leq 2,0 \text{ MJ/kg}^{(1)}$	
B1_{ca}	EN 50399 (30 kW flame source) <i>and</i>	FS $\leq 1,75 \text{ m}$ <i>and</i> THR _{1200s} $\leq 10 \text{ MJ}$ <i>and</i> Peak HRR $\leq 20 \text{ kW}$ <i>and</i> FIGRA $\leq 120 \text{ W s}^{-1}$	Smoke production ⁽²⁾ ⁽⁵⁾ and Flaming droplets/particles ⁽³⁾ and Acidity (pH and conductivity) ⁽⁴⁾
	EN 60332-1-2	H $\leq 425 \text{ mm}$	
B2_{ca}	EN 50399 (20,5 kW flame source) <i>and</i>	FS $\leq 1,5 \text{ m}$; <i>and</i> THR _{1200s} $\leq 15 \text{ MJ}$; <i>and</i> Peak HRR $\leq 30 \text{ kW}$; <i>and</i> FIGRA $\leq 150 \text{ W s}^{-1}$	Smoke production ⁽²⁾ ⁽⁶⁾ and Flaming droplets/particles ⁽³⁾ and Acidity (pH and conductivity) ⁽⁴⁾
	EN 60332-1-2	H $\leq 425 \text{ mm}$	

Classes of reaction to fire performance for electric cables

C_{ca}	EN 50399 (20,5 kW flame source) <i>and</i>	FS \leq 2,0 m; <i>and</i> THR _{1200s} \leq 30 MJ; <i>and</i> Peak HRR \leq 60 kW; <i>and</i> FIGRA \leq 300 Ws ⁻¹	Smoke production ⁽²⁾ ⁽⁶⁾ and Flaming droplets/particles ⁽³⁾ and Acidity (pH and conductivity) ⁽⁴⁾
	EN 60332-1-2	H \leq 425 mm	
D_{ca}	EN 50399 (20,5 kW flame source) <i>and</i>	THR _{1200s} \leq 70 MJ; <i>and</i> Peak HRR \leq 400 kW; <i>and</i> FIGRA \leq 1 300 Ws ⁻¹	Smoke production ⁽²⁾ ⁽⁶⁾ and Flaming droplets/particles ⁽³⁾ and Acidity (pH and conductivity) ⁽⁴⁾
	EN 60332-1-2	H \leq 425 mm	
E_{ca}	EN 60332-1-2	H \leq 425 mm	
F_{ca}	EN 60332-1-2	H > 425 mm	← New status !

Classes of reaction to fire performance for electric cables



- (1) For the product as a whole, excluding metallic materials, and for any external component (i.e. sheath) of the product. **PCS**
- (2) **s1** = $TSP_{1200} \leq 50 \text{ m}^2$ and Peak SPR $\leq 0,25 \text{ m}^2/\text{s}$
s1a = **s1** and transmittance in accordance with EN 61034-2 $\geq 80 \%$
s1b = **s1** and transmittance in accordance with EN 61034-2 $\geq 60 \%$ < 80 % **Smoke**
s2 = $TSP_{1200} \leq 400 \text{ m}^2$ and Peak SPR $\leq 1,5 \text{ m}^2/\text{s}$
s3 = not **s1** or **s2** **Droplets**
- (3) **d0** = No flaming droplets/particles within 1 200 s; **d1** = No flaming droplets/particles persisting longer than 10 s within 1 200 s;
d2 = not **d0** or **d1**.
- (4) EN 60754-2: **a1** = conductivity < 2,5 $\mu\text{S}/\text{mm}$ and pH > 4,3; **a2** = conductivity < 10 $\mu\text{S}/\text{mm}$ and pH > 4,3; **a3** = not **a1** or **a2**.
- (5) The smoke class declared for class B1_{ca} cables must originate from the EN 50399 test (30 kW flame source). **Smoke**
- (6) The smoke class declared for class B2_{ca}, C_{ca}, D_{ca} cables must originate from the EN 50399 test (20,5 kW flame source). **acidity**

Smoke

Classes of reaction to fire performance for electric cables

Example of marking, with ref. to reaction to fire classification:

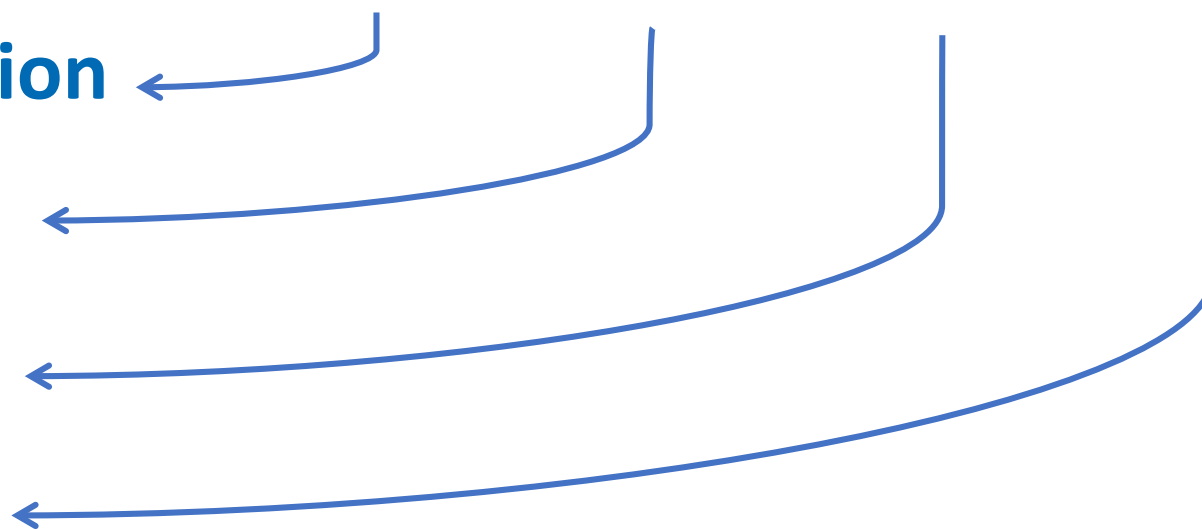
Cca - s2 - d0 - a3

Primary classification

Smoke density

Flaming droplets

Smoke acidity



Assessment and verification of constancy of performance



Commission decision 2011/284 (= AVCP)

- Commission Decision of 12 May 2011 on the procedure for attesting the conformity of construction products pursuant to Art. 20(2) of Council Directive 89/106/EEC as regards power, control and communication cables

Product(s)	Intended use(s)	Level(s) or class(es) (reaction to fire)	Attestation of conformity system(s)
Power, control and communication cables	for uses subject to regulations on reaction to fire	A_{ca} , $B1_{ca}$, $B2_{ca}$, C_{ca}	1 +
		D_{ca} , E_{ca}	3
		F_{ca}	4

Assessment and verification of constancy of performance



Commission decision 2011/284 (= AVCP)

- All systems: FPC (manufacturer)
- System 1+:
 - samples testing according to a test plan (manufacturer)
 - initial type testing, continuing surveillance, audit testing and assessment of the performance of the products (NB)
- System 3: type testing (NL)
- System 4: type testing (manufacturer)

Declaration of performance



Document issued by the manufacturer

- product reference
- manufacturer identification
- product intended usage
- AVCP system (1+, 3 or 4) and NB/NL identification
- reference standards
- DoP: reaction to fire (+ release of dangerous substances)
- signatory identification


CE marking under the CPR

CE symbol

+

a series of information



 XXXX
AnyCo Ltd, PO Box 21, B-1050, Brussels, Belgium 17 DoP identification (To be given by the manufacturer)
EN 50575:2014 Product identification (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: Cca – s2, d0, a3 Dangerous substances: none

Fire sector group of notified bodies (*GNB-CPR/SH02*)



1. Scope: addressing AVCP, DoP, EXAP rules topics such as:

- position papers, e.g. on EN 50575
- period of validity of test results
- best practice for EXAP rules, e.g. for copper communication cables
- replacement of Guidance Paper G (referring to the repealed CPD)

2. WG10 on "Cables"

- EN 50399 RRT: 18 labs out of 32 submitted results (for discussion in Nov.)
- works on best practices: EXAP rules, sampling for smoke testing,...
- "acidity test": proposal not to test minor materials (< 2% m/m)

Standardisation mandates



1. With ref. to the LVD 2014/35

- M/511: Standardisation mandate to CEN, CENELEC and ETSI relating to harmonised standards in the field of the Low Voltage Directive

2. With ref. to the CPR 305/2011 (formerly CPD 89/106)

- M/443: Mandate to CEN and CENELEC concerning the execution of standardisation work for harmonized standards on power, control and communication cables related to the following end uses: 24/33 (supply of electricity), 26/33 (communication), 28/33 (fire detection and alarm)

1. Product standards *(by CLC TC 20)*

- EN 50575: Power, control and communication cables - Cables for general applications in construction works subject to reaction to fire requirements

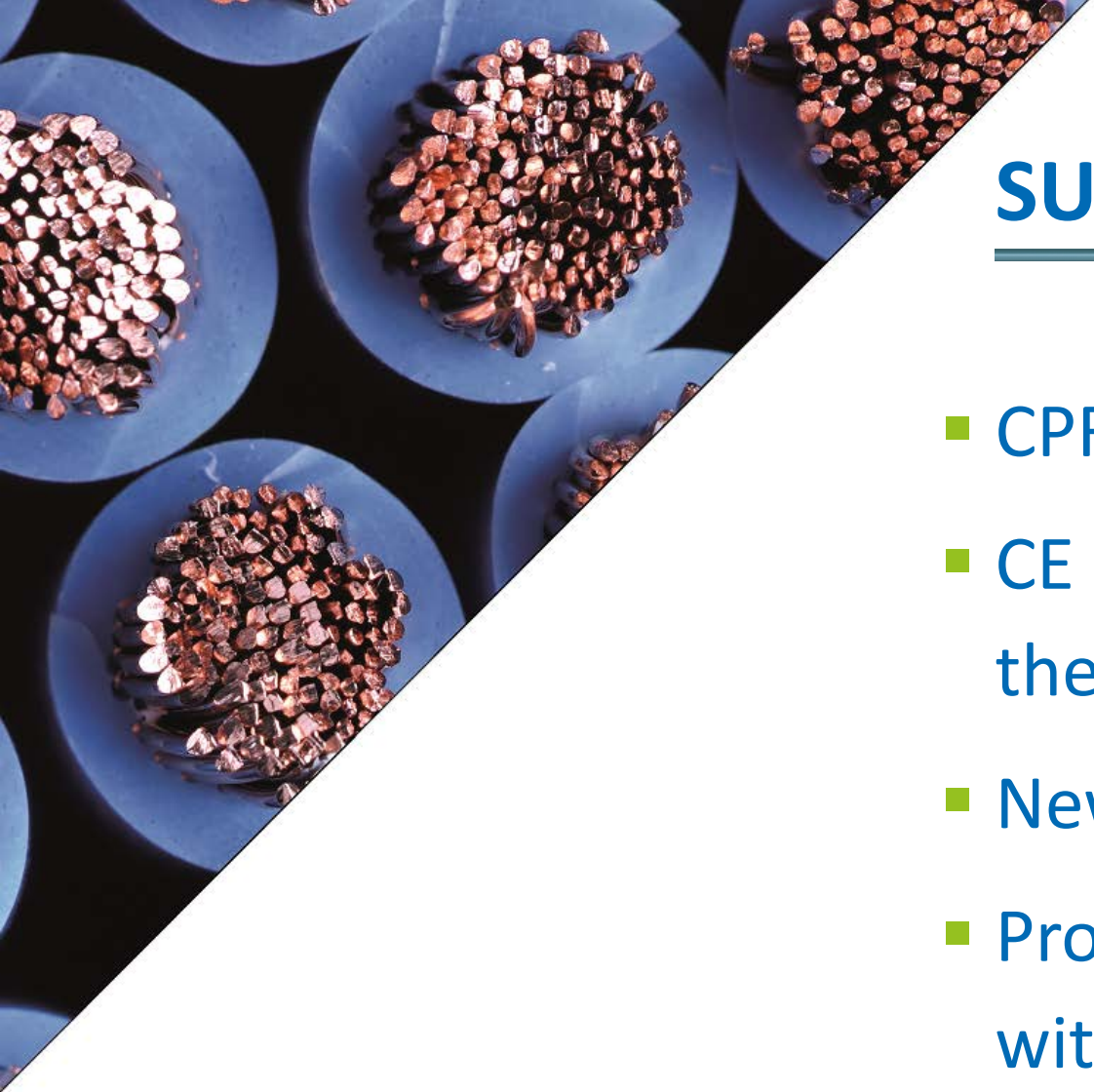
2. Reaction to fire classification standard *(by CEN TC 127)*

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

(under mandate M/117: Horizontal complement to the mandate to CEN and CENELEC concerning the execution of standardisation work for the evaluation of construction products and elements in respect of their resistance to fire)

3. Supporting standards

- EN ISO 1716: gross heat of combustion (calorific value)
(ISO TC 92 → CEN TC 127)
- EN 50399: fire test (vertical configuration)
(CLC TC 20)
- EN 60332-1-2: flame propagation (vertical configuration)
(CLC TC 20)
- EN 61034-2: smoke density
(CLC TC 20)
- EN: 60754-2: smoke acidity/presence of halogen in cable materials
(CLC TC 20, from IEC TC 20)



SUMMING UP



- CPR fully in force since 1 July 2017
- CE marking under the CPR to complement the CE marking under the LVD
- New AVCP/DoP procedure and declaration
- Products and supporting standards dealt with by several technical committees
- PVC cables fully CPR compliant



Thank you