

European reaction to fire classification for cables under the CPD

Current position

- The Commission decision on the European classification for the reaction to fire performance of cables is dated 27 October 2006 and was published in the Official Journal of the European Union on 4.11.2006.
- The Decision amends Decision 2000/147/EC implementing Council Directive 89/106/EEC as regards the classification of the reaction-to-fire performance of construction products.
- The decision stated that "separate classes of reaction-to-fire performance should be established for electric cables".
- A new "Table 4 Classes of reaction-to-fire performance for electric cable" was added.
- Detailed "Mounting and fixing conditions and definitions of test parameters regarding electric cables" were also added.

Classes of reaction-to-fire performance for electric cables (Table 4)

Class	Test method(s)	Classification criteria	Additional classification
Aca	EN ISO 1716	$PCS \leq 2,0 \text{ MJ/kg}$ (1)	
B1ca	FIPEC ₂₀ Scen 2 (5) and	$FS \leq 1.75 \text{ m}$ and $THR_{1200s} \leq 10 \text{ MJ}$ and $\text{Peak HRR} \leq 20 \text{ kW}$ and $\text{FIGRA} \leq 120 \text{ Ws-1}$	Smoke production (2, 6) and Flaming droplets/particles (3) and Acidity (4, 8)
	EN 60332-1-2	$H \leq 425 \text{ mm}$	
B2ca	FIPEC ₂₀ Scen 1 (5) and	$FS \leq 1.5 \text{ m}$; and $THR_{1200s} \leq 15 \text{ MJ}$; and $\text{Peak HRR} \leq 30 \text{ kW}$; and $\text{FIGRA} \leq 150 \text{ Ws-1}$	Smoke production (2, 7) and Flaming droplets/particles (3) and Acidity (4, 8)
	EN 60332-1-2	$H \leq 425 \text{ mm}$	
Cca	FIPEC ₂₀ Scen 1 (5) and	$FS \leq 2.0 \text{ m}$; and $THR_{1200s} \leq 30 \text{ MJ}$; and $\text{Peak HRR} \leq 60 \text{ kW}$; and $\text{FIGRA} \leq 300 \text{ Ws-1}$	Smoke production (2, 7) and Flaming droplets/particles (3) and Acidity (4, 8)
	EN 60332-1-2	$H \leq 425 \text{ mm}$	
Dca	FIPEC ₂₀ Scen 1 (5) and	$THR_{1200s} \leq 70 \text{ MJ}$; and $\text{Peak HRR} \leq 400 \text{ kW}$; and $\text{FIGRA} \leq 1300 \text{ Ws-1}$	Smoke production (2, 7) and Flaming droplets/particles (3) and Acidity (4, 8)
	EN 60332-1-2	$H \leq 425 \text{ mm}$	
Eca	EN 60332-1-2	$H \leq 425 \text{ mm}$	
Fca	No performance determined		

- 1)** For the product as a whole, excluding metallic materials, and for any external component (i.e. sheath) of the product.
- (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 $\geq 60\% < 80\%$
s2 = $TSP_{1200} \leq 400 \text{ m}^2$ and Peak SPR $\leq 1.5 \text{ m}^2/\text{s}$
s3 = not s1 or s2
- (3)** For FIPEC₂₀ Scenarios 1 and 2: 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 $< 2.5 \mu\text{S}/\text{mm}$ and pH > 4.3 ; a2 = conductivity $< 10 \mu\text{S}/\text{mm}$ and pH > 4.3 ; a3 = not a1 or a2. No declaration = No Performance Determined.
- (5)** Air flow into chamber shall be set to $8000 \pm 800 \text{ l}/\text{min}$.
FIPEC₂₀ Scenario 1 = prEN 50399-2-1 with mounting and fixing as below
FIPEC₂₀ Scenario 2 = prEN 50399-2-2 with mounting and fixing as below
- (6)** The smoke class declared for class B1ca cables must originate from the FIPEC₂₀ Scen 2 test.
- (7)** The smoke class declared for class B2ca, Cca, Dca cables must originate from the FIPEC₂₀ Scen 1 test.
- (8)** Measuring the hazardous properties of gases developed in the event of fire, which compromise the ability of the persons exposed to them to take effective action to accomplish escape, and not describing the toxicity of these gases.

Availability of classified cables

- Test methods required for the classification exist although the main test method, EN 50399, is only available in draft form. prEN 50399 includes both FIPEC₂₀ Scenario 1 and FIPEC₂₀ Scenario 2 test methods.
- There can be no cables CE marked under the CPD for their reaction to fire performance on the market until all the standards required to support such marking are available.