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(Acts whose publication is not obligatory)

COMMISSION

COMMISSION DECISION

of 27 October 2006

amending Decision 2000/147/EC implementing Council Directive 89/106/EEC as regards the classification of the reaction-to-fire performance of construction products

(notified under document number C(2006) 5063)

(Text with EEA relevance)

(2006/751/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Council Directive 89/106/EEC of 21 December 1988, on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products [1] and in particular Article 20(2) thereof,

Whereas:

(1) Commission Decision 2000/147/EC [2] established a classification system for the reaction-to-fire performance of construction products.

(2) Following a review of certain product families, separate classes of reaction-to-fire performance should be established for electric cables.

(3) Decision 2000/147/EC should therefore be amended accordingly.

(4) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Construction,

HAS ADOPTED THIS DECISION:

Article 1

The Annex to Decision 2000/147/EC is amended in accordance with the Annex to this Decision.

Article 2

This Decision is addressed to the Member States.

Done at Brussels, 27 October 2006.

For the Commission
Günter VERHEUGEN
Vice-President

[1] OJ L 40, 11.2.1989, p. 12. Directive as last amended by Regulation (EC) No 1882/2003 of the European Parliament and of the Council (OJ L 284, 31.10.2003, p. 1).
[2] OJ L 50, 23.2.2000, p. 14.

ANNEX

The Annex to Decision 2000/147/EC is amended as follows:

1. The title of Table 1 is replaced by 'CLASSES OF REACTION-TO-FIRE PERFORMANCE FOR CONSTRUCTION PRODUCTS EXCLUDING FLOORINGS, LINEAR PIPE THERMAL INSULATION PRODUCTS, AND ELECTRIC CABLES'.

2. The footnote (*) of Table 1 is deleted.

3. The following text is added:

'Table 4

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)	
$B1_{ca}$	$FIPEC_{20}$ Scen 2 (5) *and*	FS ≤ 1,75 m *and* $THR_{1\ 200s}$ ≤ 10 MJ *and* Peak HRR ≤ 20 kW *and* FIGRA ≤ 120 Ws^{-1}	Smoke production (2) (6) and Flaming droplets/particles (3) and Acidity (4) (8)
	EN 60332-1-2	H ≤ 425 mm	
$B2_{ca}$	$FIPEC_{20}$ Scen 1 (5) *and*	FS ≤ 1,5 m *and* $THR_{1\ 200s}$ ≤ 15 MJ *and* Peak HRR ≤ 30 kW *and* FIGRA ≤ 150 Ws^{-1}	Smoke production (2) (7) and Flaming droplets/particles (3) and Acidity (4) (8)
	EN 60332-1-2	H ≤ 425 mm	
C_{ca}	$FIPEC_{20}$ Scen 1 (5) *and*	FS ≤ 2,0 m *and* $THR_{1\ 200s}$ ≤ 30 MJ *and* Peak HRR ≤ 60 kW *and* FIGRA ≤ 300 Ws^{-1}	Smoke production (2) (7) and Flaming droplets/particles (3) and Acidity (4) (8)
	EN 60332-1-2	H ≤ 425 mm	
D_{ca}	$FIPEC_{20}$ Scen 1 (5) *and*	$THR_{1\ 200s}$ ≤ 70 MJ *and* Peak HRR ≤ 400 kW *and* FIGRA ≤ 1 300 Ws^{-1}	Smoke production (2) (7) and Flaming droplets/particles (3) and Acidity (4) (8)
	EN 60332-1-2	H ≤ 425 mm	
E_{ca}	EN 60332-1-2	H ≤ 425 mm	
F_{ca}	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** = $TSP_{1\ 200}$ ≤ 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 = $TSP_{1\ 200}$ ≤ 400 m^2 *and* Peak SPR ≤ 1,5 m^2/s
s3 = not s1 or s2
(3) For $FIPEC_{20}$ Scenarios 1 and 2: **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 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) Air flow into chamber shall be set to 8 000 ± 800 l/min.
$FIPEC_{20}$ Scenario 1 = prEN 50399-2-1 with mounting and fixing as below
$FIPEC_{20}$ Scenario 2 = prEN 50399-2-2 with mounting and fixing as below
(6) The smoke class declared for class $B1_{ca}$ cables must originate from the $FIPEC_{20}$ Scen 2 test.
(7) The smoke class declared for class $B2_{ca}$, C_{ca}, D_{ca} cables must originate from the $FIPEC_{20}$ 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.

MOUNTING AND FIXING CONDITIONS AND DEFINITIONS OF TEST PARAMETERS REGARDING ELECTRIC CABLES (AS MENTIONED IN FOOTNOTE ([5]) OF TABLE 4)

1. **Mounting and fixing conditions**

1.1. *Mounting of the test sample general for classes $B1_{ca}$, $B2_{ca}$, C_{ca} and D_{ca}*

The cables shall be mounted on the front of a standard ladder (EN 50266-1). Lengths of 3,5 m of cables shall be used. The lower part of the electric cables shall be 20 cm under the lower edge of the burner. The cables shall be positioned in the middle of the ladder (with respect to its width).

Each test piece or bundle shall be attached individually to each rung of the ladder by means of a metal wire (steel or copper). For electric cables up to and including 50 mm diameter, use wire between 0,5 mm and up to and including 1,0 mm in diameter. For cables above 50 mm diameter use wire between 1,0 mm and 1,5 mm in diameter.

When mounting the test pieces, the first test piece shall be positioned approximately in the centre of the ladder and further test pieces shall be added on either side so that the whole array of test pieces is approximately centred on the ladder.

The spacing and bundling is explained further below.

At each height of 25 cm a horizontal line shall be drawn in order to measure the flame spread as a function of time. The first line (i.e. zero line) shall be at the same height as the burner.

The cables shall be mounted as follows depending on the classification that is applied for.

1.1.1. Class $B2_{ca}$, C_{ca} and class D_{ca}

The selected mounting procedure depends on the electric cable diameter according to Table 4.1.

Table 4.1

MOUNTING AS A FUNCTION OF CABLE DIAMETER

Cable diameter	Mounting
Larger than or equal to 20 mm	20 mm spacing between cables
Between 5 and 20 mm	One cable diameter spacing between cables
Less than or equal to 5 mm	The cables shall be bundled in bundles of 10 mm diameter. The bundles shall not be twisted. The spacing between bundles shall be 10 mm.

The threshold values are determined with the diameter rounded to nearest mm, except for cables with a diameter of less than 5 mm, where the diameter shall **not** be rounded.

The following formulae are used for determination of the number of cable lengths per test.

1.1.1.1. For cables with diameter greater than or equal to 20 mm

The number of cables, *N*, is given by:

$$N = \mathrm{int}\left(\frac{300 + 20}{d_c + 20}\right) \quad \text{..... equation 1}$$

where:

d_c is the diameter of the cable (in mm and rounded to the nearest mm).

int function = the integer part of the result (i.e. the value rounded down).

1.1.1.2. For cables with a diameter greater than 5 mm but less than 20 mm

The number of cables, *N*, is given by:

$$N = \mathrm{int}\left(\frac{300 + d_c}{2d_c}\right) \quad \text{..... equation 2}$$

where:

d_c is the diameter of the cable (in mm and rounded).

int function = the integer part of the result (i.e. the value rounded down).

1.1.1.3. For cables or wires with a diameter less than or equal to 5 mm

The number of 10 mm bundles, N_{bu}, of cables is given by:

$$N_{bu} = \mathrm{int}\left(\frac{300 + 10}{20}\right) = 15 \quad \text{..... equation 3}$$

Thus 15 bundles with 10 mm distance between the bundles shall be mounted.

The number of cables in each bundle (*n*) is:

$$n = \mathrm{int}\left(\frac{100}{d_c^2}\right) \quad \text{..... equation 4}$$

where:

d_c is the diameter of the cable (in mm and ***not*** rounded).

The number of cable lengths (*CL*) for wires or cables with a diameter less than 5 mm will hence be:

$$CL = n \times 15 \quad \text{..... equation 5}$$

1.1.1.4. Total length of cable per test

The total length L (m) per test is:

$L = n \times 15 \times 3{,}5$ for $d_c \leq 5$ mm

or

$L = N \times 3{,}5$ for $d_c > 5$ mm ..... equation 6

1.1.2. Class $B1_{ca}$

At the back of the cable tray a non-combustible calcium silicate board shall be mounted with a density 870 ± 50 kg/m^3 and a thickness of 11 ± 2 mm. This board can be mounted in two parts.

In all other aspects the mounting of the cables is identical to class $B2_{ca}$, C_{ca} and D_{ca}.

2. **Definitions of test parameters**

Table 4.2

DEFINITIONS OF TEST PARAMETERS IN $FIPEC_{20}$ SCENARIOS 1 AND 2

All calculated parameters are evaluated during 20 minutes from test start (ignition of burner).

Parameter	Explanation
Test start	Ignition of burner
End of test	20 minutes after ignition of burner (End of period for calculation of parameters)
HRR_{sm30}, kW	Heat Release Rate averaged by a 30-s sliding average
SPR_{sm60}, m^2/s	Smoke Production Rate averaged by a 60-s sliding average
Peak HRR, kW	Maximum of HRR_{sm30} between test start and end of test, excluded contribution from ignition source
Peak SPR, m^2/s	Maximum of SPR_{sm60} between test start and end of test
$THR_{1\ 200}$, MJ	Total Heat Release (HRR_{sm30}) from test start until end of test, excluded contribution from ignition source
$TSP_{1\ 200}$, m^2	Total Smoke Production (HRR_{sm60}) from test start until end of test
FIGRA, W/s	FIre Growth RAte index defined as the highest value of the quotient between HRR_{sm30} excluding the contribution of ignition source and time. Threshold values HRR_{sm30} = 3 kW and THR = 0,4 MJ
SMOGRA, cm^2/s^2	SMOke Growth RAte index is defined as highest value of the quotient between SPR_{sm60} and time, multiplied by 10 000. Threshold value SPR_{sm60} 0,1 m^2/s and TSP = 6 m^2
PCS	Gross calorific potential
FS	Flame Spread (damaged length)
H	Flame spread
FIPEC	Fire Performance of Electric Cables'