COMMISSION DELEGATED REGULATION (EU) 2016/364

of 1 July 2015

on the classification of the reaction to fire performance of construction products pursuant to Regulation (EU) No 305/2011 of the European Parliament and of the Council

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC ([1]), and in particular Article 27(1) thereof,

Whereas:

(1) A system for classifying the performance of construction products with regard to their reaction to fire was adopted by Commission Decision 2000/147/EC ([2]). It was based on a harmonised solution of assessing this performance and classifying the results of these assessments.

(2) Decision 2000/147/EC provides several classes of reaction to fire performance. In addition, it contains classes F, F_{FL}, F_L and F_{ca}, which are defined as 'no performance determined'.

(3) In accordance with Article 2(7) of Regulation (EU) No 305/2011, a class means a range of levels, delimited by a minimum and a maximum value of performance. Classes defined as 'no performance determined' do not correspond to this definition and thus cannot be incorporated in a classification system under Regulation (EU) No 305/2011.

(4) The use of 'no performance determined' in the context of drawing up the declaration of performance is provided in Article 6(3)(f) of Regulation (EU) No 305/2011.

(5) In order to enable the manufacturers to declare lower reaction to fire performance than that covered by classes E, E_{FL}, E_L and E_{ca}, it is necessary to change the classification criteria of classes F, F_{FL}, F_L and F_{ca} accordingly.

(6) It is therefore necessary to replace the classes F, F_{FL}, F_L and F_{ca} provided in Decision 2000/147/EC with new classes for products not reaching at least the reaction to fire performance under the classes E, E_{FL}, E_L and E_{ca}.

(7) Decision 2000/147/EC has been amended several times and further amendments to that Decision are necessary. In the interests of clarity and rationality that decision should therefore be repealed and replaced,

HAS ADOPTED THIS REGULATION:

Article 1

When the intended use of a construction product is such that the product may contribute to the generation and spread of fire and smoke within the room or area of origin or beyond, the performance of the product in relation to its reaction to fire shall be classified in accordance with the classification system set out in the Annex.

([1]) OJ L 88, 4.4.2011, p. 5.
([2]) Commission Decision 2000/147/EC of 8 February 2000 implementing Council Directive 89/106/EEC as regards the classification of the reaction to fire performance of construction products (OJ L 50, 23.2.2000, p. 14).

Article 2

Decision 2000/147/EC is repealed.

References to the repealed Decision shall be construed as references to this Regulation.

Article 3

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 1 July 2015.

For the Commission
The President
Jean-Claude JUNCKER

ANNEX

Classes of reaction to fire performance

1.1. For the purposes of Tables 1 to 4 the following symbols ([1]) apply:

(1) 'ΔT' — temperature rise;

(2) 'Δm' — mass loss;

(3) 't_f' — duration of flaming;

(4) 'PCS' — gross calorific potential;

(5) 'LFS' — lateral flame spread;

(6) 'SMOGRA' — smoke growth rate.

1.2. For the purposes of Tables 1, 2 and 3 the following symbols ([1]) apply:

(1) 'FIGRA' — fire growth rate;

(2) 'THR' — total heat release;

(3) 'TSP' — total smoke production;

(4) 'Fs' — flame spread.

1.3. For the purposes of Table 4 the following symbols and test parameters apply:

(1) 'HRR_{sm30}, kW' — heat release rate averaged by a 30-s sliding average;

(2) 'SPR_{sm60}, m^2/s' — smoke production rate averaged by a 60-s sliding average;

(3) 'Peak HRR, kW' — maximum of HRR_{sm30} between test start and end of test, excluded contribution from ignition source;

(4) 'Peak SPR, m^2/s' — maximum of SPR_{sm60} between test start and end of test;

(5) 'THR_{1200}, MJ' — total heat release (HRR_{sm30}) from test start until end of test, excluded contribution from ignition source;

(6) 'TSP_{1200}, m^2' — total smoke production (HRR_{sm60}) from test start until end of test;

(7) '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;

(8) 'FS' — flame spread (damaged length);

(9) 'H' — flame spread.

2. For the purposes of Tables 1 to 4 the following definitions apply:

(1) 'material' means a single basic substance or uniformly dispersed mixture of substances;

(2) 'homogeneous product' means a product consisting of a single material, having uniform density and composition throughout the product;

(3) 'non-homogeneous product' means a product that does not satisfy the requirements of a homogeneous product and that is composed of one or more components, substantial and/or non-substantial;

([1]) The characteristics are defined with respect to the appropriate test method.

(4) 'substantial component' means a material that constitutes a significant part of a non-homogeneous product; a layer with a mass per unit area ≥ 1,0 kg/m² or a thickness ≥ 1,0 mm is considered to be a substantial component;

(5) 'non-substantial component' means a material that does not constitute a significant part of a non-homogeneous product; a layer with a mass per unit area < 1,0 kg/m² and a thickness < 1,0 mm is considered to be a non-substantial component;

(6) 'internal non-substantial component' means a non-substantial component that is covered on both sides by at least one substantial component;

(7) 'external non-substantial component' means a non-substantial component that is not covered on one side by a substantial component.

Two or more non-substantial layers that are adjacent to each other, where there are no substantial components in between the layers, shall be considered as one non-substantial component and shall, therefore, be classified in accordance with the criteria for a layer that is a non-substantial component.

Table 1

Classes of reaction to fire performance for construction products excluding floorings, linear pipe thermal insulation products, and electric cables

Class	Test method(s)	Classification criteria	Additional classification
A1	EN ISO 1182 ([1]); *and*	$\Delta T \leq 30$ °C; *and* $\Delta m \leq 50$ %; *and* $t_f = 0$ (i.e. no sustained flaming)	
	EN ISO 1716	PCS ≤ 2,0 $MJkg^{-1}$ ([1]); *and* PCS ≤ 2,0 $MJkg^{-1}$ ([2]) ([2a]); *and* PCS ≤ 1,4 MJm^{-2} ([3]); *and* PCS ≤ 2,0 $MJkg^{-1}$ ([4])	
A2	EN ISO 1182 ([1]); *or*	$\Delta T \leq 50$ °C; *and* $\Delta m \leq 50$ %; *and* $t_f \leq 20$ s	
	EN ISO 1716; *and*	PCS ≤ 3,0 $MJkg^{-1}$ ([1]); *and* PCS ≤ 4,0 MJm^{-2} ([2]); *and* PCS ≤ 4,0 MJm^{-2} ([3]); *and* PCS ≤ 3,0 $MJkg^{-1}$ ([4])	
	EN 13823 (SBI)	FIGRA ≤ 120 Ws^{-1}; *and* LFS < edge of specimen; *and* $THR_{600s} \leq 7,5$ MJ	Smoke production ([5]); *and* Flaming droplets/particles ([6])
B	EN 13823 (SBI); *and*	FIGRA ≤ 120 Ws^{-1}; *and* LFS < edge of specimen; *and* $THR_{600s} \leq 7,5$ MJ	Smoke production ([5]); *and* Flaming droplets/particles ([6])
	EN ISO 11925-2 ([8]): *Exposure = 30 s*	Fs ≤ 150 mm within 60 s	

Class	Test method(s)	Classification criteria	Additional classification
C	EN 13823 (SBI); *and*	FIGRA ≤ 250 Ws^{-1}; *and* LFS < edge of specimen; *and* THR_{600s} ≤ 15 MJ	Smoke production (5); *and* Flaming droplets/particles (6)
	EN ISO 11925-2 (8): *Exposure = 30 s*	Fs ≤ 150 mm within 60 s	
D	EN 13823 (SBI); *and*	FIGRA ≤ 750 Ws^{-1}	Smoke production (5); *and* Flaming droplets/particles (6)
	EN ISO 11925-2 (8): *Exposure = 30 s*	Fs ≤ 150 mm within 60 s	
E	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs ≤ 150 mm within 20 s	Flaming droplets/particles (7)
F	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs > 150 mm within 20 s	

(1) For homogeneous products and substantial components of non-homogeneous products.
(2) For any external non-substantial component of non-homogeneous products.
(2a) Alternatively, any external non-substantial component having a PCS ≤ 2,0 MJm^{-2}, provided that the product satisfies the following criteria of EN 13823(SBI): FIGRA ≤ 20 Ws^{-1}; *and* LFS < edge of specimen; *and* THR_{600s} ≤ 4,0 MJ; *and* s1; *and* d0.
(3) For any internal non-substantial component of non-homogeneous products.
(4) For the product as a whole.
(5) **s1** = SMOGRA ≤ 30 m^2s^{-2} *and* TSP_{600s} ≤ 50 m^2; **s2** = SMOGRA ≤ 180 m^2s^{-2} *and* TSP_{600s} ≤ 200 m^2; **s3** = not s1 or s2.
(6) **d0** = No flaming droplets/particles in EN 13823 (SBI) within 600s; **d1** = No flaming droplets/particles persisting longer than 10s in EN 13823 (SBI) within 600s; **d2** = not d0 or d1; Ignition of the paper in EN ISO 11925-2 results in a d2 classification.
(7) No ignition of the paper = no additional classification; Ignition of the paper = **d2** classification.
(8) Under conditions of surface flame attack and, if appropriate to the intended use of the product, edge flame attack.

Table 2

Classes of reaction to fire performance for floorings

Class	Test method(s)	Classification criteria	Additional classification
$A1_{FL}$	EN ISO 1182 (1); *and*	ΔT ≤ 30 °C; *and* Δm ≤ 50 %; *and* t_f = 0 (i.e. no sustained flaming)	
	EN ISO 1716	PCS ≤ 2,0 $MJkg^{-1}$ (1); *and* PCS ≤ 2,0 $MJkg^{-1}$ (2); *and* PCS ≤ 1,4 MJm^{-2} (3); *and* PCS ≤ 2,0 $MJkg^{-1}$ (4)	
$A2_{FL}$	EN ISO 1182 (1); *or*	ΔT ≤ 50 °C; *and* Δm ≤ 50 %; *and* t_f ≤ 20 s	
	EN ISO 1716; *and*	PCS ≤ 3,0 $MJkg^{-1}$ (1); *and* PCS ≤ 4,0 MJm^{-2} (2); *and* PCS ≤ 4,0 MJm^{-2} (3); *and* PCS ≤ 3,0 $MJkg^{-1}$ (4)	
	EN ISO 9239-1 (5)	Critical flux (6) ≥ 8,0 kWm^{-2}	Smoke production (7)

Class	Test method(s)	Classification criteria	Additional classification
B_{FL}	EN ISO 9239-1 (5) *and*	Critical flux (6) ≥ 8,0 kWm^{-2}	Smoke production (7)
	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs ≤ 150 mm within 20 s	
C_{FL}	EN ISO 9239-1 (5) *and*	Critical flux (6) ≥ 4,5 kWm^{-2}	Smoke production (7)
	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs ≤ 150 mm within 20 s	
D_{FL}	EN ISO 9239-1 (5) *and*	Critical flux (6) ≥ 3,0 kWm^{-2}	Smoke production (7)
	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs ≤ 150 mm within 20 s	
E_{FL}	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs ≤ 150 mm within 20 s	
F_{FL}	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs > 150 mm within 20 s	

(1) For homogeneous products and substantial components of non-homogeneous products.
(2) For any external non-substantial component of non-homogeneous products.
(3) For any internal non-substantial component of non-homogeneous products.
(4) For the product as a whole.
(5) Test duration = 30 minutes.
(6) Critical flux is defined as the radiant flux at which the flame extinguishes or the radiant flux after a test period of 30 minutes, whichever is the lower (i.e. the flux corresponding with the furthest extent of spread of flame).
(7) **s1** = Smoke ≤ 750 %.min; **s2** = not s1.
(8) Under conditions of surface flame attack and, if appropriate to the intended use of the product, edge flame attack.

Table 3

Classes of reaction to fire performance for linear pipe insulation products

Class	Test method(s)	Classification criteria	Additional classification
$A1_L$	EN ISO 1182 (1); *and*	ΔT ≤ 30 °C; *and* Δm ≤ 50 %; *and* t_f = 0 (i.e. no sustained flaming)	
	EN ISO 1716	PCS ≤ 2,0 $MJkg^{-1}$ (1); *and* PCS ≤ 2,0 $MJkg^{-1}$ (2); *and* PCS ≤ 1,4 MJm^{-2} (3); *and* PCS ≤ 2,0 $MJkg^{-1}$ (4)	

Class	Test method(s)	Classification criteria	Additional classification
$A2_L$	EN ISO 1182 (1); *or*	$\Delta T \leq 50$ °C; *and* $\Delta m \leq 50$ %; *and* $t_f \leq 20$ s	
	EN ISO 1716; *and*	PCS ≤ 3,0 $MJkg^{-1}$ (1); *and* PCS ≤ 4,0 MJm^{-2} (2); *and* PCS ≤ 4,0 MJm^{-2} (3); *and* PCS ≤ 3,0 $MJkg^{-1}$ (4)	
	EN 13823 (SBI)	FIGRA ≤ 270 Ws^{-1}; *and* LFS < edge of specimen; *and* $THR_{600s} \leq 7,5$ MJ	Smoke production (5); *and* Flaming droplets/particles (6)
B_L	EN 13823 (SBI); *and*	FIGRA ≤ 270 Ws^{-1}; *and* LFS < edge of specimen; *and* $THR_{600s} \leq 7,5$ MJ	Smoke production (5); *and* Flaming droplets/particles (6)
	EN ISO 11925-2 (8): *Exposure = 30 s*	Fs ≤ 150 mm within 60 s	
C_L	EN 13823 (SBI); *and*	FIGRA ≤ 460 Ws^{-1}; *and* LFS < edge of specimen; *and* $THR_{600s} \leq 15$ MJ	Smoke production (5); *and* Flaming droplets/particles (6)
	EN ISO 11925-2 (8): *Exposure = 30 s*	Fs ≤ 150 mm within 60 s	
D_L	EN 13823 (SBI); *and*	FIGRA ≤ 2 100 Ws^{-1} $THR_{600s} \leq 100$ MJ	Smoke production (5); *and* Flaming droplets/particles (6)
	EN ISO 11925-2 (8): *Exposure = 30 s*	Fs ≤ 150 mm within 60 s	
E_L	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs ≤ 150 mm within 20 s	Flaming droplets/particles (7)
F_L	EN ISO 11925-2 (8): *Exposure = 15 s*	Fs > 150mm within 20 s	

(1) For homogeneous products and substantial components of non-homogeneous products.
(2) For any external non-substantial component of non-homogeneous products.
(3) For any internal non-substantial component of non-homogeneous products.
(4) For the product as a whole.
(5) **s1** = SMOGRA ≤ 105 m^2s^{-2} *and* $TSP_{600s} \leq 250$ m^2; **s2** = SMOGRA ≤ 580 m^2s^{-2} *and* $TSP_{600s} \leq 1\ 600$ m^2; **s3** = not s1 or s2.
(6) **d0** = No flaming droplets/particles in EN13823 (SBI) within 600s; **d1** = No flaming droplets/particles persisting longer than 10s in EN13823 (SBI) within 600s; **d2** = not d0 or d1; Ignition of the paper in EN ISO 11925-2 results in a d2 classification.
(7) No ignition of the paper = no additional classification; Ignition of the paper = **d2** classification.
(8) Under conditions of surface flame attack and, if appropriate to the intended use of the product, edge flame attack.

Table 4

Classes of reaction to fire performance for electric cables

Class	Test method(s)	Classification criteria	Additional classification
$\mathbf{A}_{ca}$	EN ISO 1716	PCS ≤ 2,0 MJ/kg (1)	
$\mathbf{B1}_{ca}$	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 (pH and conductivity) (4)
	EN 60332-1-2	H ≤ 425 mm	
$\mathbf{B2}_{ca}$	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 (pH and conductivity) (4)
	EN 60332-1-2	H ≤ 425 mm	
$\mathbf{C}_{ca}$	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 (pH and conductivity) (4)
	EN 60332-1-2	H ≤ 425 mm	
$\mathbf{D}_{ca}$	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 (pH and conductivity) (4)
	EN 60332-1-2	H ≤ 425 mm	
$\mathbf{E}_{ca}$	EN 60332-1-2	H ≤ 425 mm	
$\mathbf{F}_{ca}$	EN 60332-1-2	H > 425 mm	

(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} ≤ 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_{1200} ≤ 400 m^2 *and* Peak SPR ≤ 1,5 m^2/s
s3 = not s1 or s2
(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 µS/mm *and* pH > 4,3; **a2** = conductivity < 10 µS/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).
(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).