

**COMMISSION DECISION**  
**of 9 September 1994**  
**implementing Article 20 of Directive 89/106/EEC on construction products**

(94/611/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to 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 <sup>(1)</sup>, as last amended by Directive 93/68/EEC <sup>(2)</sup>, and in particular Articles 3, 6 and 20 thereof,

Having regard to the Commission communication with regard to the interpretative documents of Directive 89/106/EEC,

Whereas Article 3 (2) of Directive 89/106/EEC states that in order to take account of different levels of protection for the construction works that may prevail at national, regional or local levels, each essential requirement may give rise to the establishment of classes in the interpretative documents and the technical specifications;

Whereas paragraph 4.2.1 of interpretative document No 2 'Safety in case of fire' justifies the need of different levels of the Essential Requirement as function of:

- the type, use and location of the construction work,
- its layout,
- the availability of the emergency facilities;

Whereas paragraph 2.2 of interpretative document No 2 lists a number of interrelated measures for the satisfaction of the Essential Requirement 'Safety in case of fire' that together contribute to define the fire safety strategy that can be developed in different ways in Member States;

Whereas paragraph 4.2.3.3 of interpretative document No 2 identifies one of these measures prevailing in Member States that consist in the limitation of the generation and spread of fire and smoke within the room of origin (or in a given area) by limiting the contribution of construction products to the full development of a fire;

Whereas the definition of classes of the essential requirement partially depends on the level of such a limitation;

Whereas the level of this limitation may be expressed only by different levels of reaction to fire performances of the products in their end use conditions;

Whereas paragraph 4.3.1.1 of interpretative document No 2 specifies that to enable reaction to fire performance of products to be evaluated, a harmonized solution will be developed which may utilize full or bench scale tests that are correlated to relevant real fire scenarios;

Whereas this solution lies in a system of classes that are not included in the interpretative document;

Whereas the system of classes identified for this purpose refers to a number of test methods already defined by the standardization bodies, with the exception of the one called Single Burning Item (SBI);

Whereas the thresholds of classes B, C, D will be indicated later with a new decision which will take place as far as the development of the SBI will make it possible;

Whereas Article 20 (2) of Directive 89/106/EEC specifies the procedure to be followed for the adoption of the provision necessary for the establishment of classes of requirements in so far as they are not included in the interpretative documents;

Whereas the Standing Committee for construction was consulted, in accordance with the procedure laid down in Article 20 (3) of the Directive, and provided a positive opinion,

HAS ADOPTED THIS DECISION:

*Article 1*

1. When the end-use condition of a construction product is such that it contributes to the generation and spread of fire and smoke within the room of origin (or in a given area), the product will be classified on the base of its reaction-to-fire performances having regard to the classification system listed in Tables 1 and 2 of the Annex.

2. Products will be considered in their end-use conditions.

<sup>(1)</sup> OJ No L 40, 11. 2. 1989, p. 12.

<sup>(2)</sup> OJ No L 220, 30. 8. 1993, p. 1.

3. Table 1 applies to the following cases :

- products for walls and ceilings including their surface coverings,
- building elements,
- products incorporated within building elements,
- pipes and duct components,
- products for facades/external walls.

Table 2 applies to floors including their surface coverings.

*Article 2*

This Decision is addressed to the Member States.

Done at Brussels, 9 September 1994.

*For the Commission*

Martin BANGEMANN

*Member of the Commission*

TABLE 1

## Classes of reaction to fire performance for building products excluding floorings

Fire situation		Euroclasses	Class of products	Reference document presently available:	Test methods
Fully developed fire in a room	Level of exposure: more than 60 kW/m <sup>2</sup>	A	<ul style="list-style-type: none"> <li>— No contribution to fire</li> <li>— Very limited calorific content and heat release</li> <li>— No flaming combustion</li> <li>— Limited mass loss</li> </ul>	CEN/TC 127/N 229 and CEN/TC 127/N 230 and list of non-combustible products	$\Delta T \leq 30^\circ\text{C}$ $\Delta m \leq 50\%$ $t_f < 5$ seconds PCS $\leq 1,7\text{--}2,4$ MJ/kg or $\leq 1,4\text{--}2,0$ MJ/m <sup>2</sup>
		B	<ul style="list-style-type: none"> <li>— Very limited calorific content and/or heat release</li> <li>— Limited mass loss</li> <li>— Practically no spread of flame</li> <li>— Very limited smoke production</li> <li>— No flaming droplets/particles and/or combination of these</li> </ul>	CEN/TC 127/N 229 and/or CEN/TC 127/N 230  SBI test	$\Delta T \leq 50^\circ\text{C}$ $\Delta m \leq 50\%$ $t_f \leq 20$ seconds $\square \leq \text{PCS} \leq \square$ MJ/kg $\square \leq \text{PCS} \leq \square$ MJ/m <sup>2</sup> Spread of flame Smoke production } (values to be defined)
Single burning item in a room	Level of exposure: maximum about 40 kW/m <sup>2</sup> on a limited area and decreasing over the surface	C	<ul style="list-style-type: none"> <li>— Limited contribution to fire</li> <li>— Very limited spread of flame<sup>(1)</sup></li> <li>— Limited heat release</li> <li>— Limited smoke production</li> <li>— Limited ignitability</li> <li>— Very limited flaming droplets/particles and/or combination of these</li> </ul>	CEN/TC 127/AH 2 N156 <sup>(2)</sup> ISO/DIS 11925-2  SBI test	$\Delta T$ Time to ignition Spread of flame Smoke production Droplets/particles } (values to be defined) — Exposure time 30 seconds — Time till flames reach a certain point — Extent of damaged area — Observation of burning droplets

Fire situation		Euroclasses	Class of products		Test methods	
		D	Acceptable contribution to fire	<ul style="list-style-type: none"> <li>— Limited spread of flame (°)</li> <li>— Acceptable heat release</li> <li>— Limited smoke production</li> <li>— Acceptable ignitability</li> <li>— Limited flaming droplets/particles and/or combination of these</li> </ul>	<p><i>Reference document presently available:</i></p> <p>SBI test</p> <p>CEN/TC 127/AH 2/N156 (°)</p> <p>ISO/DIS 11925-2</p>	<p>Time to ignition } (values to be defined)</p> <p><math>\Delta T</math> }                      Spread of flame }                      Smoke production }                      Droplets/particles }</p> <ul style="list-style-type: none"> <li>— Exposure time 30 seconds</li> <li>— Time till flames reach a certain point</li> <li>— Extent of damaged area</li> <li>— Observation of burning droplets</li> </ul>
Small fire attack on a limited area of a product	Level of exposure : burner with 20 mm flame height	E	Acceptable reaction to fire	— Permittable ignitability	<p><i>Reference document presently available:</i></p> <p>CEN/TC 127/AH 2/N156 (°)</p> <p>ISO/DIS 11925-2</p>	<ul style="list-style-type: none"> <li>— Exposure time 15 seconds</li> <li>— No flame in a distance of 150 mm after 20 seconds</li> <li>— Observation of burning droplets</li> </ul>
		F	No performance determined			

(°) For vertical applied building products, also vertical spread of flame.  
 (°) For products which evade the exposure by shrinkage, etc.: movable small flame with observation of burning droplets.  
 These values will be established after the development of the SBI.

$t_f$  = duration of flaming  
 PCS = gross calorific potential  
 N.B. The characteristics are defined with respect to the reference documents.

$\Delta m$  = mass loss  
 $\Delta T$  = temperature rise

TABLE 2

## Classes of reaction to fire performance for surface of floors

Fire situation		Classes of products		Test methods
Fully developed fire in a room	Level of exposure : more than 60 kW/m <sup>2</sup>	A <sub>n</sub> ( <sup>1</sup> )	<ul style="list-style-type: none"> <li>— No contribution to fire</li> <li>— Very limited calorific content and heat release</li> <li>— Limited mass loss</li> <li>— No flaming combustion</li> </ul>	<ul style="list-style-type: none"> <li>Reference document presently available</li> <li>CEN/TC 127/N 229 and CEN/TC 127/N 230</li> <li>Δ T ≤ 30 °C</li> <li>Δ m ≤ 50 %</li> <li>t<sub>f</sub> &lt; 5 seconds</li> <li>PCS ≤ 1,7-2,4 MJ/kg or ≤ 1,4-2,0 MJ/m<sup>2</sup></li> </ul>
		B <sub>n</sub> ( <sup>1</sup> )	<ul style="list-style-type: none"> <li>— Very limited contribution to fire</li> <li>— Very limited calorific content</li> <li>— Limited mass loss</li> <li>— Practically no spread of flame</li> <li>— Very limited smoke production</li> </ul>	<ul style="list-style-type: none"> <li>Reference document presently available</li> <li>CEN/TC 127/N 229 and/or CEN/TC 127/N 230</li> <li>Δ T ≤ 50 °C</li> <li>Δ m ≤ 50 %</li> <li>t<sub>f</sub> ≤ 20 seconds</li> <li>□ ≤ PCS ≤ □ MJ/kg</li> <li>□ ≤ PCS ≤ □ MJ/m<sup>2</sup></li> </ul>
Fully developed fire in an adjacent room	Level of exposure : radiation on a limited area of a maximum of 10 kW/m <sup>2</sup>	C <sub>n</sub>	<ul style="list-style-type: none"> <li>— Limited contribution to fire</li> <li>— Very limited : spread of flame</li> <li>— smoke production</li> </ul>	<ul style="list-style-type: none"> <li>Reference document presently available</li> <li>CEN/TC 127/N 125</li> <li>Critical flux 10 kW/m<sup>2</sup></li> <li>Test duration : 30 minutes</li> <li>Observation : <ul style="list-style-type: none"> <li>— extent of spread of flame</li> <li>— smoke production</li> </ul> </li> <li>Evaluation : pass/fail</li> </ul>
		D <sub>n</sub>	<ul style="list-style-type: none"> <li>— Acceptable contribution to fire</li> <li>— Limited : spread of flame</li> <li>— smoke production</li> </ul>	<ul style="list-style-type: none"> <li>Reference document presently available</li> <li>CEN/TC 127/N 125</li> <li>Critical flux 4,5 kW/m<sup>2</sup></li> <li>Test duration : 30 minutes</li> <li>Observation : <ul style="list-style-type: none"> <li>— extent of spread of flame</li> <li>— smoke production</li> </ul> </li> <li>Evaluation : pass/fail</li> </ul>
Small fire attack on a limited area of a product	Level of exposure : burning cigarette	E <sub>n</sub>	<ul style="list-style-type: none"> <li>— Acceptable reaction to fire</li> <li>— Permittable ignitability</li> </ul>	<ul style="list-style-type: none"> <li>Reference document presently available</li> <li>Methanamine 'pill' test</li> <li>— extent of damaged area</li> </ul>
		F <sub>n</sub>	No performance determined	

t<sub>f</sub> = duration of flaming

Δ m = mass loss

Δ T = temperature rise

PCS = gross calorific potential

(<sup>1</sup>) After the final development of the test method, classes A<sub>n</sub> and B<sub>n</sub> could be grouped into only one class by modification of the mandate.