

EN 13501-1:2007

the European classification for the reaction to fire behaviour of building products

ROLE OF THE EUROCLASS SYSTEM

The Euroclass system for characterising the reaction to fire behaviour of construction products, as required by the CPD, is described in the EN 13501-1. For CE-marked products, their classification following this standard can be used on the CE-label. In a way, this CE-mark can be considered as a product's passport into the European construction market, effectively allowing free trade between member states.

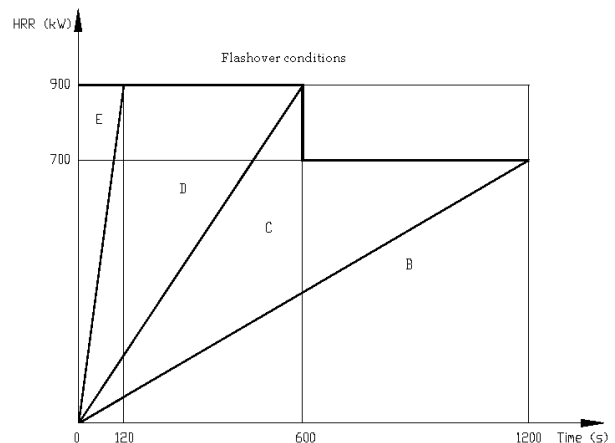


CLASSIFICATION PRINCIPLE

The classification is based on the product's behaviour in reference scenarios; for flooring products, the reference scenario is exposure of the product to a fire in an adjacent room through an opening, e.g. an open doorway.

The classification for wall and ceiling products is based on the contribution to fire development the products will give in a scenario with a fire starting in a small room, by a single burning object. The different classifications are explained in the graph (from the classification standard), and can be described as follows:

- Class A1 products will not contribute to the fire growth nor to the fully developed fire;
- Class A2 products will not significantly contribute to the fire growth and fire load in a fully developed fire;
- Class B products will not lead to a flashover situation, however they will contribute to the fully developed fire;
- Class C products may lead to a flashover situation, but only in the second part of the reference scenario test, i.e. after more than 10 minutes;
- Class D products may lead to a flashover situation, within the first part of the reference scenario test, i.e. within 10 minutes, but not within less than 2 minutes;
- Class E products may quickly lead to a flashover situation, possibly within the first two minutes of the reference scenario test.



In addition to the main classification for contribution to fire growth, additional classification parameters are assigned to a product, for smoke production and flaming droplets and particles.

TESTS REQUIRED

A set of essentially five test methods are available for classification:

- EN ISO 1182, non-combustibility
- EN ISO 1716, gross calorific value
- EN 13823, the SBI test, or
- EN ISO 9239-1 (for flooring products)
- EN ISO 11925-2, small flame test
- For Classification A1, test results following EN ISO 1182, and EN ISO 1716, are required; sometimes test results following EN 13823 are required as well
- For Classification A2, test results following EN ISO 1182, and/or EN ISO 1716, are required, as well as test results following EN 13823; additional classifications for smoke (s1 - s3) and falling droplets/debris (d0 - d2) are given
- For Classification B - D, test results following EN ISO 11925-2 in addition to test results following EN 13823 are required; additional classifications for smoke (s1 - s3) and falling droplets/debris (d0 - d2) are given
- For Classification E, only test results following EN ISO 11925-2 are required; additional classifications for falling droplets/debris (d0 or d2) are given.

Class	Test methods required for non-flooring products			
	EN ISO 1182	EN ISO 1716	SBI	EN ISO 11925-2
A1	X	X	(X)	
A2	X	X	X	
B			X	X
C			X	X
D			X	X
E				X
F	No testing required			

For flooring products the role of the EN 13823 is taken by the EN ISO 9239-1. Only additional smoke classifications (s1 or s2) can be given. a classification for flooring products is characterised by the subscript fl with the main classification.

FIELD OF APPLICATION ACCORDING TO EN 13501-1

Classification for reaction to fire is in principle for products in their end-use application. This means the products should also be tested in a way representative of their specific end-use application, which may require special attention on how to mount the product in the SBI test set-up. The relevant product standard may contain guidelines, and often will contain strict prescriptions on standard configurations resulting in the largest field of application. But in all cases due consideration should be given to the selection of product range and the mounting and fixing of your product to achieve the optimum field of application of the test results.



Efectis Nederland BV is the centre for fire safety in the Netherlands. The centre has at its disposal a range of services that complement and strengthen each other: testing & certification, special fire testing, calculations & modelling, consultancy & courses and regulations & assessments.

There are three specialities within testing:

- Reaction to fire: testing of materials and objects in the fire development phase;
- Resistance to fire: testing of (parts of) building components and structures during exposure to a fully developed fire;
- Special testing and fire investigation: for example tests on extinguishing systems, and tests on smoke and heat exhaust ventilators including open-close and freeze-thaw cycles. On-site fire investigation into the cause or development of a fire, in addition to small-scale or large-scale reconstructions, for example for use in forensic research.

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