



THE FLOORING RADIANT PANEL TEST EN ISO 9239-1:2010

Role of test in the Euroclass system

The EN ISO 9239-1 "Determination of the burning behaviour of flooring products using a radiant heat source" is the main test method of the Euroclass system for flooring products as defined in the CPD. The test results are required for a classification Dfl - Bfl (combined with test results from EN 11925-2), and for a classification A2fl (combined with test results from EN ISO 1716 or EN ISO 1182).

Test principle

The horizontally oriented specimen is exposed to a radiant heat source, giving a heat flux gradient of approximately 11 kW/m² at one end of the specimen, to less than 1 kW/m² at the other end. A line burner is situated at the high heat flux end of the specimen. Smoke production is assessed by measuring attenuation of a light beam by smoke in the exhaust duct. The burning behaviour of the specimen is observed for flame spread. This flame spread is related to the CHF, the critical heat flux to extinguishment. This CHF is defined as the incident heat flux (kW/m²) at the surface of a specimen at the point where the flame ceases to advance and may subsequently go out. If after 30 minutes the specimen is still burning, the position of the flame front at this time is taken as the CHF.

Test report

The test report contains information about the test specimens and test results. The main test results are:

- CHF (the critical heat flux to extinguishment)
- The integral of the smoke obscuration over the testing time (expressed in % * minutes)

Criteria for evaluation according to EN 13501-1

The test results described above can be used for classification according to EN 13501-1.

The following requirements are set for the different classifications:

- Afl - Bfl CHF \geq 8.0 kW/m²
- Cfl CHF \geq 4.5 kW/m²
- Dfl CHF \geq 3.0 kW/m²

The smoke classification is determined based on the integral of the smoke obscuration over the testing time. For an s1 classification, this value should not be higher than 750 % * minutes.

Test specimens

The test specimens shall be representative of the flooring in its end use. For a complete test series eight specimens (dimensions 1.050 x 230) mm, four in one direction (e.g. production direction) and four in a direction perpendicular to the first direction are required.

Including a chosen substrate (e.g. Euroclass A1 or A2 or wood based class Dfl supports) the overall flooring combination shall not become thicker than 40 mm.

The normal procedure is to first test one specimen in one direction and one specimen in the direction perpendicular to the first. The test which yields the lowest CHF value is repeated twice in that direction, so a total of at least four tests are required.

If a product is not directional with regard to its fire behaviour only 3 tests (and four specimens) are required.

Product standards for specific products (groups) can contain prescriptions for specimen construction to obtain a maximum field of application. This will mainly be EN 14041 (Resilient, textile and laminate floor coverings), EN 14342 (Wood flooring). Information about the field of application can also be found in the EN 13238 (standard substrates).

Testing

Testing can start when the order is confirmed in writing, and the test specimens have been conditioned according to the standard. Usually it will take about 6 weeks, from the moment the test specimens and confirmation are received, before the test report is finished.

