



## THE SINGLE BURNING ITEM TEST EN 13823:2020

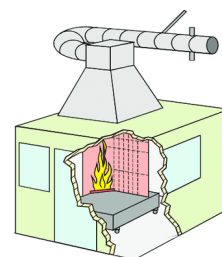
### ROLE OF TEST IN THE EUROCLASS SYSTEM

The Single Burning Item test can be considered as the backbone of the Euroclass system for building products. The test results are required for a classification D - B (combined with test results from EN ISO 11925-2), for a classification A2 (combined with test results from EN ISO 1716 or EN ISO 1182), and sometimes for a classification A1.

### TEST PRINCIPLE

The specimen is exposed to a diffusive flame of 30 kW. Combustion gases are collected by an exhaust hood for analysis. This gas analysis makes it possible by oxygen depletion to calculate heat release rate from 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, and the occurrence of burning particles and droplets.



### TEST REPORT

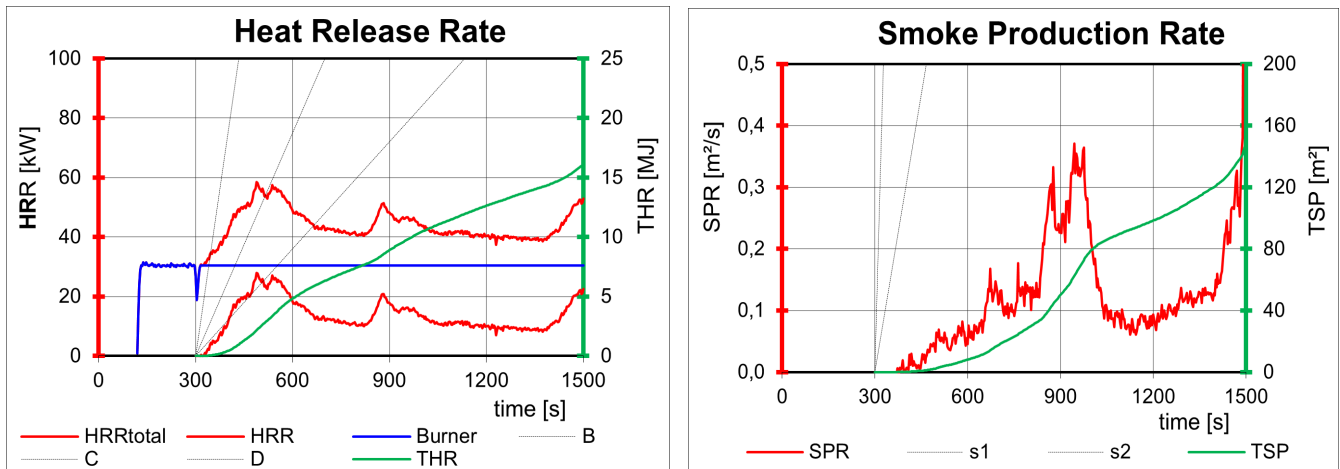
The report contains information about the test specimens and test results. The following test results are tabulated:

- Fgra, an indication of Fire Growth Rate based on heat release during the entire exposure period [W/s]
- THR, the Total Heat Release during the evaluation period [MJ]
- TSP, the Total Smoke Production during the evaluation period [m<sup>2</sup>]
- SMOGRA, an indication of Smoke Growth Rate based on smoke production [m<sup>2</sup>/s<sup>2</sup>]
- LFS, whether or not a lateral flame spread to the end of the long wing was observed
- Whether burning droplets were observed

The test report also contains graphic representations of the measurements during the test, and pictures of the test specimen before and after the test.

**TEST GRAPHS**

The following graphs shows the Heat release and Smoke production during the fire test over 25 minutes.

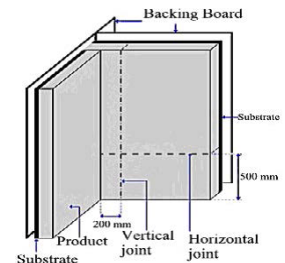


**CRITERIA FOR EVALUATION ACCORDING TO EN 13501-1**

The test results described above can be used for assessing a classification according to EN 13501-1. Normally, this is done based on the average of 3 single tests. If the results do not match the envisaged classification, 2 additional tests can be done and the best and worst results will be excluded from the evaluation. The test results described above are based on a 10 minutes evaluation period; the entire exposure period is 20 minutes. If the specimen generates too much heat during the second part of the exposure (defined in the standard) the test result is not valid. This way, products which perform well in the first part of the test, but burn excessively during the second part, are excluded from classification.

**SPECIMENS REQUIREMENTS**

Test specimens shall be representative of the product as placed on the market or in its end-use application, including both vertical and horizontal joints, as far as possible. A complete test requires that at least 3 specimens are tested. For product range coverings extra tests can be performed like thickness, density or other applicable aspects.



**TESTING**

Testing can be started when order is confirmed in writing, and the test specimens have been conditioned according to the standard. Normally it will take about 3-4 weeks from when we have received the test specimens until the test report is finished.

**FIELD OF APPLICATION**

Product standards for specific products, mounting and fixing standard EN 15715 and CEN/TS 15117 guidance for test results can contain prescriptions for specimen construction to obtain the maximum direct and extended field of application.