



FURNITURE FLAMMABILITY TEST METHODS

Various standards exist to characterise the ignition and burning behaviour of furniture and furniture components. The severity of the ignition source varies from test method to test method, giving answers about fire safety for different circumstances.

In this information leaflet you will find a short overview of some frequently used test methods.

EN 1021-1 AND EN 1021-2

This method determines the ignition behaviour of furniture (components) exposed to relatively small ignition sources; a smouldering cigarette and a small flame. The test is performed on a test rig (representing a chair) consisting of a back with dimensions 450 x 450 mm and a seat with dimensions 450 x 300 mm or on a full-scale chair (end-use application).

The test specimen should consist of filling material, optionally an inner liner, and a cover fabric.

The EN 1021-1 (cigarette) test last for 1 hour, the composite is checked for progressive smouldering

combustion and flaming combustion. In the EN 1021-2 (small flame, match equivalent) test any flaming combustion should cease within 120 s after removal of the ignition source; the specimen will also be checked for glowing combustion.

These test methods are very similar to (based on) the British Standard BS 5852, source 0 respectively source 1 and the international ISO 8191-1 and -2. The EN 597 described the same ignition sources and criteria, but is used for mattresses.

The IMO Fire test procedure, as described in IMO FTP 2010, Part 8, (Test for upholstered furniture), is based on the same ignition sources as described above.

The test is intended for furniture composites. Single components can be evaluated in combination with standard (reference) materials for either filling or fabric.

DUTCH BUILDING DEGREE AND REGULATIONS (ACCORDING TO BS 7176)

Products meeting requirements from this standard can be considered safe to use in low risks environments, such as at home, in offices and schools.

BS 5852

This method determines the ignition behaviour of furniture (components) with a series of ignition sources, varying from a smouldering cigarette (source 0), gas flames (sources 1, 2 and 3) to wood cribs (sources 4 - 7). The sources 0 and 1 are those described in EN 1021-1/2.

The most often used ignition sources are the wood cribs 5 and 7. The test is performed on a test rig (representing a chair) consisting of a back with dimensions 450 x 450 mm and a seat with dimensions 450 x 300 mm or on a full scale chair (end-use application). The test specimen should consist of filling material, optionally an inner liner, and a cover fabric.

In these tests, the flaming combustion should stop within 120 seconds (flaming ignition sources 1, 2 and 3), 10 minutes after ignition (flaming ignition crib sources 4 and 5) or 13 minutes (flaming ignition crib sources 6 and 7). After the test, the damage to the specimen should not have reached the extremities (edges and bottom of the specimen).

The test is intended for furniture composites. Single components can be evaluated with standard (reference) materials for either filling or fabric.

The BS 6807 described the same ignition sources and criteria, but is used for mattresses.

DUTCH BUILDING DEGREE AND REGULATIONS (ACCORDING TO BS 7176)

Products meeting the requirements from the standard of BS 5852, when using the ignition source 5, can be considered safe to use in medium risks public places, such as theatres, cinemas, restaurants and hotels.

When meeting the requirements of the standard BS 5852 when using ignition source 7, products can be considered sufficiently (fire)safe for use in high risk places like mental hospitals and prisons.

TESTING

Testing can be started when the order is confirmed in writing, and the test specimens have been conditioned according to the method. Generally it will take some 5 to 6 weeks from receiving the test specimens and the test report is finished.