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AMENDMENT 1
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Reaction-to-fire tests — Heat release, smoke production and mass loss rate —

Part 1:
Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement)

AMENDMENT 1

Essais de réaction au feu — Débit calorifique, taux de dégagement de fumée et taux de perte de masse —

Partie 1: Débit calorifique (méthode au calorimètre à cône) et taux de dégagement de fumée (mesurage dynamique)

AMENDEMENT 1

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This document was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 1, *Fire initiation and growth*.

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Reaction-to-fire tests — Heat release, smoke production and mass loss rate —

Part 1:
Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement)

AMENDMENT 1

Page 7, 6.10

Replace subclause 6.10 with the following:

6.10 Ignition circuit

External ignition is accomplished by a spark plug powered from a 10 kV transformer or spark igniter. The spark plug shall have a gap of (3,0 ± 0,5) mm. The electrode length and location of the spark plug shall be such that the spark gap is located (13 ± 2) mm above the centre of the specimen, except for dimensionally unstable materials for which the distance is (48 ± 2) mm (see 7.5). The ignition spark should be visible as continuous to the naked eye.

Page 9, 7.5

Replace subclause 7.5 with the following:

7.5 Dimensionally unstable materials

Samples that intumesce or deform so that they contact the spark plug prior to ignition, or reach the level of the heater base plate after ignition, shall be tested with a separation of 60 mm between the base plate of the cone heater and the upper surface of the specimen. In this case the heater calibration (see 10.2.5) shall be performed with the heat flux meter positioned 60 mm below the cone heater base plate. It shall be stressed that the time to ignition measured with this separation is not comparable to that measured with the separation of 25 mm. If, when tested with a separation of 60 mm between the cone heater base plate and the upper surface of the specimen, the specimen still intumesces or deforms such that it contacts the spark plug prior to ignition, or the upper specimen surface reaches the level of the cone heater baseplate, the specimen is not suitable for the testing to this document.

Other dimensionally unstable products, for example products that warp or shrink during testing, shall be restrained against excessive movement. This shall be accomplished with 4 tie wires, as described below. Metal wires of (1,0 ± 0,1) mm diameter and at least 350 mm long shall be used. The sample shall be prepared in the standard way as described in Clause 8. A tie wire is then looped around the sample holder and retainer frame assembly, so that it is parallel to and approximately 20 mm away from one of the 4 sides of the assembly. The ends of the wire are twisted together such that the wire is pulled firmly against the retainer frame. Excess wire is trimmed from the twisted section before testing. The 3 remaining wires shall be fitted around the specimen holder and retainer frame assembly in a similar manner, parallel to the three remaining sides.

Materials that distort so extensively that they cannot be held by 4 wires should be tested using the fine wire grid made of (0,8 ± 0,1) mm with wire spacing of (20 ± 2) mm shown in Figure 8.

Materials that intumesce in a fluid phase such that molten materials overflow the edge frame or seep between the edge frame and the specimen holder invalidate the test. Therefore, such materials should be tested without the edge frame and should be housed in 0,1 mm thick aluminium tray wrappings which extend 10 mm above the top edge of the test specimen.

Page 16, after subclause 11.2.6

Add new subclause 11.2.7.

11.2.7 Clean the igniter rods prior to test if soot or other debris has accumulated on them.

Page 17, 11.3.7

Replace subclause 11.3.7 with the following:

11.3.7 Three specimens shall be tested and reported as described in Clause 13. The 180 s mean heat release readings shall be compared for the three specimens. If any of these mean readings differ by more than 10 % from the arithmetic mean of the three readings, then a further set of three specimens shall be tested unless the mean value is less than 10 kW m−2. In such cases, the arithmetic mean of the set of six readings shall be reported.

The smoke production rate test data shall not be discarded if piloted ignition does not occur, because the production rate data may have relevance under non-flaming conditions. The zero value of the extinction coefficient shall be verified prior to every test as part of the procedures specified in 11.2.

The test data is not valid if the specimen melts sufficiently to overflow the sample holder, if explosive spalling occurs, or if the specimen swells excessively and touches the spark igniter or the upper specimen surface reaches the level of the cone heater base plate.

NOTE The heat release rate measurements described within this document, normally utilize piloted ignition. Separate non-standard tests can be conducted for research purposes without piloted ignition to evaluate smoke production rates under non-flaming conditions.

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