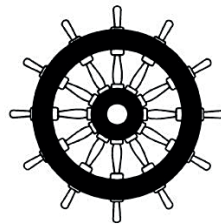


12/22-F36

Quality and conformity marks

- Conformity Mark (CE-Mark) for Construction products
- European Notified Body Code Number: 0766
- Our cooperation partner SATRA certifies on the base of our reports for the UKCA sign
- Testing of flame-retardent and non-combustible materials for Shipbuilding interior finishing: acc. to IMO 2010 FTP Code, Annex 1, Part 1 and Part 5
 - Ceilings and wall coverings
 - Surface coatings
 - Floor coverings



Specimens after Radiant Panel Testing

Expertise

The Entwicklungs- und Prüflabor Holztechnologie GmbH (EPH) is:

- Accredited laboratory – according to the Criteria of the Standard ISO 17025
- Notified Testing Laboratory and Notified Product Certification Body for floor coverings according to EN 14041 and EN 14342 and for sports areas according to EN 14904 after the European Construction Products Regulation (CPR) and Horizontal European Notified Testing Body for Reaction to fire according to: EN ISO 1182, EN ISO 11925-2, EN ISO 1716 and EN ISO 9239-1
- Accredited Laboratory for Reaction to Fire Testing according to IMO res. MSC. 307(88) FTP Code 2010, Annex 1, Part 1 (Non-combustibility) and Part 5 (Spread of Flame)

Our experts are actively involved in the standardisation of floor coverings in CEN/TC 134/ISO/TC 219.

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Technician for fire testing

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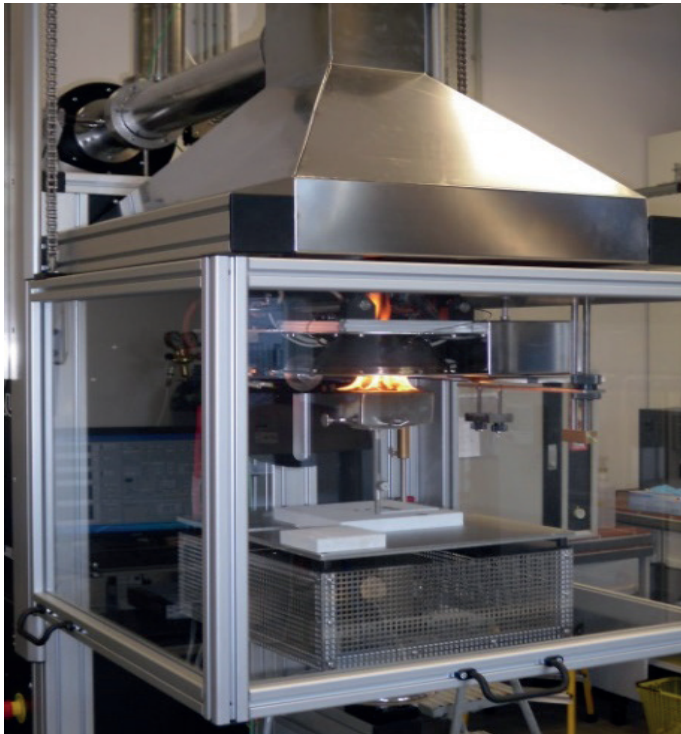
Reaction to Fire Testing



for construction products and
shipbuilding interior finishing

Test procedures

- Single-flame source test for determination of ignitability acc. to EN ISO 11925-2 (e.g., for underlay materials)
- Reaction to fire of floor coverings by Radiant Panel Test acc. to EN ISO 9239-1
- Reaction to fire of floor coverings and wall and ceiling coverings for shipbuilding interior finishing acc. to IMO 2010 FTP Code, Part 5 (Spread of Flame)
- Non-combustibility test acc. to EN ISO 1182 (Construction products A1/A2; IMO 2010 FTP Code, Part 1)
- Heat of combustion (Calorific value) acc. to EN ISO 1716
- Oxygen index acc. to EN ISO 4589-2/-3
- Testing with Cone-Calorimeter acc. to ISO 5660-1 including SBI-simulation



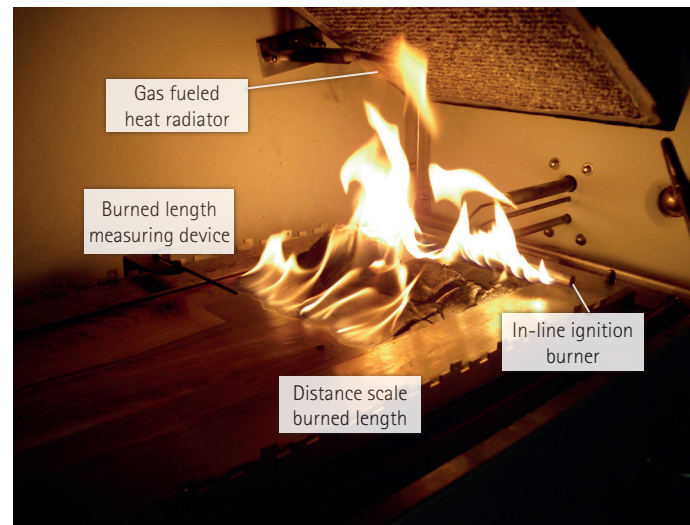
Cone-Calorimeter acc. to ISO 5660-1

Radiant panel test acc. to EN ISO 9239-1

In the Radiant Panel Test there is simulated the fire of a flanking wall and the falling down of a burning object simultaneously. The flooring sample with dimensions of 1050 mm x 230 mm, mounted horizontally in the testing chamber, is exposed to a radiant heat up to 12 kW/m² by a gas-fueled radiant heat source fastened in an angle of 30°. After a preheating of 2 min the flooring sample will be exposed to the "burning object" by ignition and moving forwards an in-line pilot burner.

The further fire propagation of the meanwhile as a rule independently burning sample, measured as covered flame spread distance in dependence of the test duration is monitored until extinguishment of the sample or the end of the test respectively. After the 30 min test duration the Critical Heat Flux CHF [kW/m²] related to the maximum flame spread distance is determined in accordance with the regular calibration.

Besides the flame spread also the smoke production is evaluated. The measured parameter is the light attenuation in the flue channel of the testing device as the integral over the testing duration.



Radiant Panel Test acc. EN ISO 9239-1

Single-flame source test acc. to EN ISO 11925-2

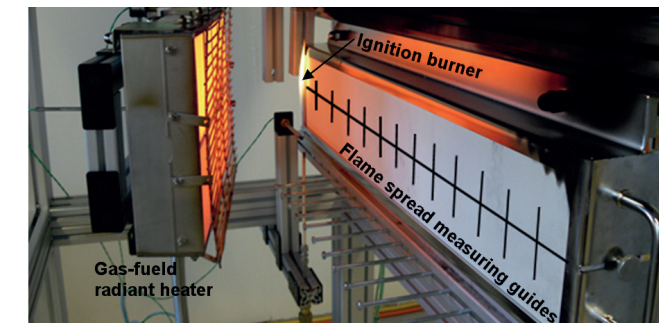
The Single-flame Source Test simulates the fire situation of a burning matchstick, falling down on the floor, whereas 20 s after beginning of the test by direct exposure to flame at surface for 15 s a maximal extent of flame $F_s \leq 150$ mm is allowed corresponding to the requirements on floorings. The specimens with dimensions of 250 mm x 90 mm are vertically mounted into the combustion box and flamed by a 20 mm long single-flame source with 45° angle against the surface.

Spread of flame acc. to IMO 2010 FTP code

Materials intended for the use in the Shipbuilding industry have to meet the requirements of the International Maritime Organisation IMO. The following surface flammability criteria are tested:

- Critical Flux at Extinguishment CFE in kW/m²,
- Heat for sustained burning Q_{sb} in MJ/m²,
- Total heat release Q_t in MJ and
- Peak of heat release rate Q_p in kW.

The vertically mounted specimens with dimensions of 795 mm x 155 mm are exposed to a radiant heat up to 50 kW/m² by a gas-fueled radiant heater fastened in an angle of 15° and ignited by a pilot burner.



Spread of Flame acc. to IMO 2010 FTP Code, Annex 1, Part 5