

Material testing on Non-Combustibility according to IMO-Regulations

International Maritime Organization (IMO) 2010 FTP Code Part 1

Any material used for construction of divisions aboard a ship - except for adhesives - must comply with the test criterion of non-combustibility according to IMO regulations.

The conduction of non-combustibility tests and classification of tested materials is carried out according to the „International Code for Application of Fire Test Procedures (FTPC)“:

- IMO 2010 FTP Code Teil 1, IMO-Resolution MSC.307(88)

Testing procedure

Cylindrical specimen (H = 50 mm, Ø = 45 mm) are heated up to 750° Celsius ($\pm 5^{\circ}\text{C}$) within an electrically heated furnace according to DIN EN ISO 1182. During this test two thermocouples measure the occurring temperature.

One thermocouple (furnace thermocouple) measures the temperature inside of the furnace. The second thermocouple (specimen surface thermocouple) measures the temperature at the surface of the specimen.

During the test the instant of time as well as the duration of occurrence of any sustained flaming are recorded.

Furthermore moisture content and organic content of specimens are determined.

Each specimen is weighed before and after the test in order to calculate the mass loss of the specimen after the test.

Start of fire test in the Non-combustibility test furnace



Progress of fire test in the Non-combustibility test furnace



Reaction of sample material in the Non-combustibility test furnace



Testing criteria

According to IMO 2010 FTPC Part 1 the sample material is classified as 'non-combustible' if the following four criteria are satisfied:

- Average furnace temperature rise not exceeding 30°C (determined accord. to paragraph 7.5.3 of DIN EN ISO 1182:2010)
- Average specimen surface temperature rise not exceeding 30°C (determined accord. to paragraph 7.5.3 of DIN EN ISO 1182:2010)
- Average duration of sustained flaming less than 10 seconds (determined accord. to paragraph 7.5.2 of DIN EN ISO 1182:2010)
- Average mass loss less than 50% (determined accord. to paragraph 7.5.1 of DIN EN ISO 1182:2010)

Sampling

Specimens must be representative for the product to be tested. For this reason sample material is taken from current manufacturing or from stock.

The sampling must be recorded in a sampling protocol to ensure the traceability of the sample material. The protocol must give information on name and function of sampler (QM), date, place and type of sampling etc.

Alternatively the sampling can be conducted by an expert of the Test Laboratory for Fire Protection of DMT GmbH & Co. KG.

Specimens

The following dimensions of sample materials are required for the Non-combustibility test:

- H = 50 mm, Ø = 45 mm

Required documents

The following documentation is required prior to the commencement of testing:

- Written order including invoice address
- Specimens
- Technical specifications data sheet (incl. bulk density, mass per unit area, material thickness, manufacturer, trade name etc.)
- Material safety data sheet
- Detailed description of product and composition of material
- Sampling protocol (except for exploratory testing) and coating protocol
- Delivery note incl. specification of type of testing and exact denotation of sample

Do you require further information?

Our team is eager to offer you advice and support. Contact us!

DMT GmbH & Co. KG

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