

# Finnish Maritime Administration

CIRCULAR No. 19/16.12.1996

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## **FIRE SAFETY CLASSIFICATION OF CONSTRUCTION AND FURNISHING MATERIALS USED ON BOARD SHIPS, 1996**

The Finnish Maritime Administration has, in accordance with Section 11 of the Decree on Fire Protection of Ships (152/1972), issued a decision on fire safety classification of construction and furnishing materials used on board ships. The decision enters into force on 16 December 1996.

The decision is a revision of a decision issued on 13 December 1984. The essential amendments are:

An agreement on quality control must be made before a decision on type approval may be issued;

The test procedures used as criteria for type approval have been altered (Appendix 2);

Certain products (Appendix 2: test No. 4, 5 and 6) shall be submitted to a smoke generation and toxicity test (Appendix 2: test No. 2) as from 1 July 1998. Approvals relating to smoke generation and toxicity may, however, also be issued prior to that date. The criteria for approval are presented in Appendix 5.

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**FINNISH MARITIME ADMINISTRATION REGULATION****Date: 29.11.1996  
No. 3/30/96**

- Contents:** Fire safety classification of construction and furnishing materials used on board ships
- Based on:** Decree on Fire Protection of Ships (152/1972) Section 11
- Target groups:** Manufacturers and users
- Validity:** 16.12.1996 - until further notice
- Repeals:** The National Board of Navigation's regulations on fire safety classification for construction and furnishing materials used on board ships, 13 Dec. 1984, No. 2980/84/3052

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**FINNISH MARITIME ADMINISTRATION  
DECISION  
ON FIRE SAFETY CLASSIFICATION  
OF CONSTRUCTION AND FURNISHING MATERIALS  
USED ON BOARD SHIPS**

Helsinki, 29 November 1996

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The Finnish Maritime Administration has, in accordance with Section 11 of the Decree on Fire Protection of Ships (152/1972), 18 February 1972, decided as follows:

**Section 1**

The fire safety classification and type approval of construction and furnishing materials used on board ships shall be carried out in accordance with the regulations set out in the Annex to the present decision.

**Section 2**

This decision shall enter into force on 16 December 1996.

This decision repeals the National Board of Navigation's regulations on fire safety classification for construction and furnishing materials used on board ships, 13 December 1984.

Helsinki, 29 November 1996

Kyösti Vesterinen  
Director-General

Heikki Valkonen  
Head of Maritime Safety Department

**THE FINNISH MARITIME ADMINISTRATION'S REGULATIONS  
ON FIRE SAFETY CLASSIFICATION  
OF CONSTRUCTION AND FURNISHING MATERIALS USED ON BOARD SHIPS**

**1 General**

- 1.1 Bulkheads, decks, doors, windows, fire dampers, plastic pipes, primary deck coverings, floor coverings, insulation materials, veneers, textiles and other materials which are required to have fire safety classification, shall be approved in accordance with these regulations.
- 1.2 The Finnish Maritime Administration shall issue a Type Approval Certificate to the applicant for products approved in accordance with these regulations.
- 1.3 Type-approved products may be installed for their intended use on board Finnish ships.

**2 Application for Approval**

- 2.1 The application for approval shall be made by the manufacturer or his authorized representative established within the European Community or within the European Economic Area and be sent to the Finnish Maritime Administration.
- 2.2 The application shall contain:
- a) the name and address of the applicant;
  - b) the name and address of the manufacturer;
  - c) the name of the product;
  - d) a description of the intended use of the product and the specific qualities for which approval is sought.
- 2.3 The application shall have the following enclosures:
- a) two sets of drawings or descriptions of the structure and materials of the product as well as instructions, if any, for its installation and use;
  - b) a report on the fire test (see paragraph 9);
  - c) a quality control agreement.
- The Finnish Maritime Administration may demand additional information in connection with the application, if it is necessary for the evaluation of the product.
- 2.4 The application and enclosed documentation shall be in Finnish, Swedish, or English.
- 2.5 The applicant shall have legal right to use the test report.



### 3 **Quality Control**

3.1 For the type approval to be valid, a quality control agreement shall be made between the applicant or the manufacturer on the one hand, and a recognized control institute on the other hand.

Prior to type approval, a quality control agreement shall be made for each type-approved product, if the Finnish Maritime Administration has not granted exemption from this requirement. The agreement shall contain at least the items specified in the model agreement (Appendix 1).

3.2 The aim of quality control is to ensure that the materials and composition of the products fully agree with the Type Approval Certificate.

3.3 A representative of the control institute shall visit the manufacturer at least once a year without prior notice. During the control the following measures shall be taken:

a) visual checking of raw material production and storage;

b) control of products under manufacture and in store so as to ensure agreement with the Type Approval Certificate. A product not manufactured by the holder of the Type Approval Certificate shall be specified with regard to furnisher, marking of material and possible type mark or approval;

c) control of the marking of the product;

d) random sampling of the material or product for control tests to be undertaken according to suitable test procedures, if necessary in the control institute; and

e) control of the manufacturer's own continuous quality supervision.

3.4 The control institute shall inform the Finnish Maritime Administration and the manufacturer of the test results.

3.5 The costs for the quality control and supervision are to be borne by the manufacturer.

### 4 **Labelling**

The label on a type-approved product shall contain at least the following information:

a) the name of the manufacturer;

b) the name of the product;

c) fire safety classification;

d) number and year of manufacture; and

e) type approval number.

## 5 Criteria for validity of type approval

The type approval is valid if:

- a) only such products are delivered with a type approval label as are in accordance with the Type Approval Certificate with regard to material and composition;
- b) the product is labelled in accordance with paragraph 4 above, unless exemption has been granted from this requirement; and
- c) the manufacture of the product is controlled according to specific requirements in paragraph 3 above.

## 6 Validity of type approval

- 6.1 A type approval is valid for five years. The Finnish Maritime Administration may decide on a shorter duration of the type approval if there are grounds for the decision in, i.a., research and test results.
- 6.2 Type approvals issued before the entry into force of these regulations will be in force for the period mentioned in the Type Approval Certificate.

## 7 Renewal of type approval

Applications for renewal of type approval follow the same procedure as applications for type approval of new products, except that a new fire test is not required in cases where the fire test for the type approval complies with the requirements in these regulations and the quality of the product remains unchanged.

## 8 List of type-approved products

The Finnish Maritime Administration keeps a list of type-approved products.

## 9 Fire tests

- 9.1 Products for which an application for type approval is made shall be submitted to a fire test according to Appendix 2 to these regulations.
- 9.2 The fire test shall be carried out at a recognized testing institute.

## 10 Recognized institutes

- 10.1 The following testing institutes are recognized:

.1 Testing institutes located in the European Community and in the European Economic Area and accredited by the national accrediting authority of the state where the testing institute is located, to perform the tests required in these regulations\*); and

.2 other testing institutes recognized by the Finnish Maritime Administration.

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\*) The Technical Research Centre of Finland (VTT), Building Technology, Fire Technology is an accredited institute (FINAS accreditation).

- 10.2 When recognizing testing institutes, the following criteria shall be applied:
- .1 The testing institute is engaged as a regular part of its business in performing inspections and tests that are the same or similar to the tests described in the applicable test procedures in these regulations;
  - .2 The testing institute has access to the apparatus, facilities, personnel, and calibrated instruments necessary to perform these tests and inspections;
  - .3 The testing institute is not owned or controlled by a manufacturer, vendor, or supplier of the product being tested;
  - .4 The testing institute has a quality system which conforms with the standards of the EN 45000 series applicable to testing institutes.
- 10.3 The following control institutes are recognized:
- .1 Control institutes located in the European Community and in the European Economic Area and recognized by the maritime authority of the state where the control institute is located, to perform the controls required in paragraph 3 above. The Technical Research Centre of Finland (VTT), Building Technology, Fire Technology is recognized by the Finnish Maritime Administration; and
  - .2 other control institutes recognized by the Finnish Maritime Administration.
- 10.4 When recognizing control institutes, the following criteria shall be applied:
- .1 The control institute is engaged as a regular part of its business in performing controls applicable to products covered by this regulation;
  - .2 The control institute has access to the apparatus, facilities, personnel, and calibrated instruments necessary to perform controls.
  - .3 The control institute is not owned or controlled by a manufacturer, vendor, or supplier of the product being controlled.

## APPENDICES

- 1 Model of Quality Control Agreement
  - 2 Fire tests to be carried out and the classification of the products
  - 3 Requirements for veneers
  - 4 Requirements for floor coverings
  - 5 Smoke generation and toxicity tests; criteria for approval
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## APPENDIX 1

(Quality control agreement, model)

**AGREEMENT ON QUALITY CONTROL, AS STIPULATED IN THE FINNISH MARITIME ADMINISTRATION'S DECISION OF 29 NOVEMBER 1996, No 3/30/96, ON FIRE SAFETY CLASSIFICATION OF CONSTRUCTION AND FURNISHING MATERIALS USED ON BOARD SHIPS**

The ..... (recognized control institute), hereinafter the controller, and ..... hereinafter the manufacturer, have entered into the following agreement on quality control:

**1 Product subject to quality control**

This agreement concerns products presented in Enclosure 1.

**2 Purpose of quality control**

Quality control is aimed at ensuring that the product will continue to fulfil the requirements specified in the decision on type approval.

**3 Performance of quality control**

The quality control includes continued quality supervision by the manufacturer and quality control undertaken by the controller. For this purpose

.1 The manufacturer will:

regularly supervise the quality of the product by means of continued quality supervision;

inform the controller of places and times of manufacture, and in case products are stored elsewhere, the places of storage;

inform the controller of the name(s) of the person(s) responsible for the quality, manufacture and storage of the product;

inform the controller in advance in writing of any changes in raw materials, manufacture or quality;

grant a person assigned or authorized by the controller for quality control, unrestricted access to manufacture and storage premises, make available to this person any quality supervision material or equipment in existence, and otherwise provide good services and information necessary for quality control;

label the product in accordance with paragraph 4 in the Finnish Maritime Administration's Decision on Fire Safety Classification of Construction and Furnishing Materials for Use on board Ships (29.11.1996, No 3/30/96) and with the decision on type approval for the product; and

send at his own expense the samples taken for quality control to the controller.

.2 The controller will:

perform quality control in accordance with Enclosure 2 to this agreement;

keep confidential the information obtained in connection with the quality control and pertaining to the financial position of the enterprise or to business and professional secrets; and

inform the manufacturer of the results of the quality control.

#### 4 **Reporting to the Finnish Maritime Administration**

The controller will, as soon as possible after each visit, provide the Finnish Maritime Administration with a report on the findings of the quality control. If the controller finds that the quality or the manufacture of the product displays such changes that the product might not fulfil the quality requirements stipulated in the decision on type approval, he should immediately inform the Finnish Maritime Administration.

#### 5 **Costs**

The manufacturer is responsible for costs caused by the quality control.

Quality control measures shall be taken in such a manner that the manufacturer is caused neither unnecessary costs nor hindrances in the manufacture of the product.

#### 6 **Validity of Agreement**

This agreement will be valid for the same period as the Finnish Maritime Administration's decision on type approval of the product.

If the manufacture of the product or the procedures for quality supervision change so that they no longer correspond to the situation when the agreement was made, each party has the right to cancel the agreement with three months' notice.

The agreement will, however, be immediately cancelled if the Finnish Maritime Administration cancels the type approval for the product.

This agreement has been made in two copies, one for each party.

The manufacturer shall forward a copy of the signed agreement to the Finnish Maritime Administration.

(date and signatures)

- Enclosures: 1 Copy of the application for type approval  
2 Quality control undertaken by the controller  
3 Quality supervision undertaken by the manufacturer



## APPENDIX 2

## FIRE TESTS

This table presents the fire tests to be carried out and the classification of the products.

No.	Product	Test procedure	Classification
1	Fire insulation, heat insulation and similar non-combustible material	IMO Resolution A.799(19) <sup>1)</sup>	Non-combustible material
2	Construction and furnishing material	IMO Resolution MSC.41(64) <sup>2)</sup>	Material which does not produce excessive quantities of smoke and toxic products or give rise to toxic hazards at elevated temperatures
3	Bulkhead, deck, door, lining, ceiling	IMO Resolution A.754(18) <sup>3)</sup> or IMO Resolution A.517(13) <sup>4)</sup>	A-0, A-15, A-30, A-60, B-0, B-15, B-30 combustible B-class, F
4	Veneers and laminates (bulkhead, roof etc. surfaces) <sup>5)</sup>	IMO Resolution A.653(16) <sup>6), 7)</sup>	Surface material having low flame spread characteristics
5	Floor covering <sup>8)</sup>	IMO Resolution A.653(16) <sup>6), 9)</sup>	Floor covering having low flame spread characteristics
6	Primary deck covering <sup>10)</sup>	IMO Resolution A.687(17) <sup>6)</sup> or IMO Resolution A.214(VII)	Not readily ignitable primary deck covering
7	Curtains and other suspended textiles	IMO Resolution A.471(XII) + IMO Resolution A.563(14)	Suspended textiles having low flame spread characteristics
8	Upholstered furniture	IMO Resolution A.652(16)	Not readily ignitable upholstered furniture
9	Bedding components	IMO Resolution A.688(17)	Not readily ignitable bedding components
10	Construction and furnishing material	SFS 4814 (ISO 1716)	Calorific value of materials will be defined by the test <sup>11)</sup>
11	Plastic pipes	IMO Resolution A.753(18)	Classes L1, L2 and L3
12	Fire-restricting materials	IMO Resolution MSC.40(64)	Fire-restricting material
13	Fire-resisting construction	IMO Resolution MSC.45(65)	Fire-resisting construction (class reference is made by a figure indicating fire-resistance per minute)

## Remarks:

- 1) Products tested in accordance with IMO Resolution A.472(XII) are granted type approvals up to 31 December 1998, such approvals being valid until 31 December 2001 at most.
  - 2) The results of smoke generation and toxicity tests of materials are subject to the criteria set out in Appendix 5.
  - 3) The minimum size of the vertical test specimen (bulkhead) in paragraphs 2.1, 2.4.1 and 2.7.1 of IMO Resolution A.754(18) is 2440 mm in breadth and 2500 mm in height and the minimum size of the horizontal test specimen (deck) in paragraphs 2.2.1, 2.5.1 and 2.8.1 is 2440 mm in breadth and 3040 mm in length.
  - 4) A joint interpretation "Exchange of Notes on the application of uniform testing rules for structural fire protection of ships to comply with the requirements of the amendments to the International Convention for the Safety of Life at Sea, 1974, ratified on 20 November 1981 and any subsequent amendments to the Convention", adopted by the maritime administrations of Denmark, Sweden, Norway, U.K. and Finland (27 May 1986, amended 14 June 1989), is applied to the test procedure set out in IMO Resolution A.517(13).
  - 5) As from 1 July 1998, surface materials are approved only if they have been subjected to a smoke generation and toxicity test (see table No. 2). If a surface material has been approved before 1 July 1998 without a smoke generation and toxicity test, the manufacturer shall, for a renewal of the approval, submit results of such tests not later than 30 June 1998. If the results of the tests are not submitted in due time, the approval will be cancelled.
  - 6) The interpretation set out in IMO MSC/Circ.549 is applied to the test procedures of IMO Resolution A.653(16) and IMO Resolution A.687(17).
  - 7) Surface materials of class I are approved in accordance with test procedure NT FIRE 004 (SFS 4192), in compliance with the criteria set out in Appendix 3, up to 31 March 1997, whereby the approval is valid until 31 December 1999 at most.
  - 8) As from 1 July 1998, floor coverings are approved only if they have been subjected to a smoke generation and toxicity test (see table No. 2). If a floor covering has been approved before 1 July 1998 without a smoke generation and toxicity test, the manufacturer shall, for a renewal of the approval, submit results of such tests not later than 30 June 1998. If the results of the tests are not submitted in due time, the approval will be cancelled.
  - 9) Floor coverings of class L are approved in accordance with test procedure NT FIRE 007 (SFS 4195) in compliance with the criteria set out in Appendix 3, up to 31 March 1997, whereby the approval is valid until 31 December 1999 at most.
  - 10) As from 1 July 1998, primary deck coverings are approved only if they have been subjected to a smoke generation and toxicity test (see table No. 2). If a primary deck covering has been approved before 1 July 1998 without a smoke generation and toxicity test, the manufacturer shall, for a renewal of the approval, submit results of such tests not later than 30 June 1998. If the results of the tests are not submitted in due time, the approval will be cancelled.
  - 11) The calorific value of the product is defined in accordance with this test procedure, if it cannot be obtained in any other way (technical manuals or the like).
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APPENDIX 3

**REQUIREMENTS FOR VENEERS AND OTHER SURFACE MATERIALS**

**1 Test procedure**

The characteristics of the material with regard to flame spread and smoke generation are tested according to the standard SFS 4192, whose factual contents are the same as those of NORDTEST method NT FIRE 004.

**2 Criteria for approval**

A surface material is referred to class I provided it fulfils the following requirements in three consecutive tests:

- a) The mean temperature curve of gas temperatures measured in different tests remains below limit curve 1, with the exception of a time of altogether at most half a minute corresponding to a maximum area of 15°C min;
- b) the opaqueness of the smoke gases does not on the average exceed 10 units according to the test scale, and at no time 50 units.

The tests should be carried out for at least 10 minutes.

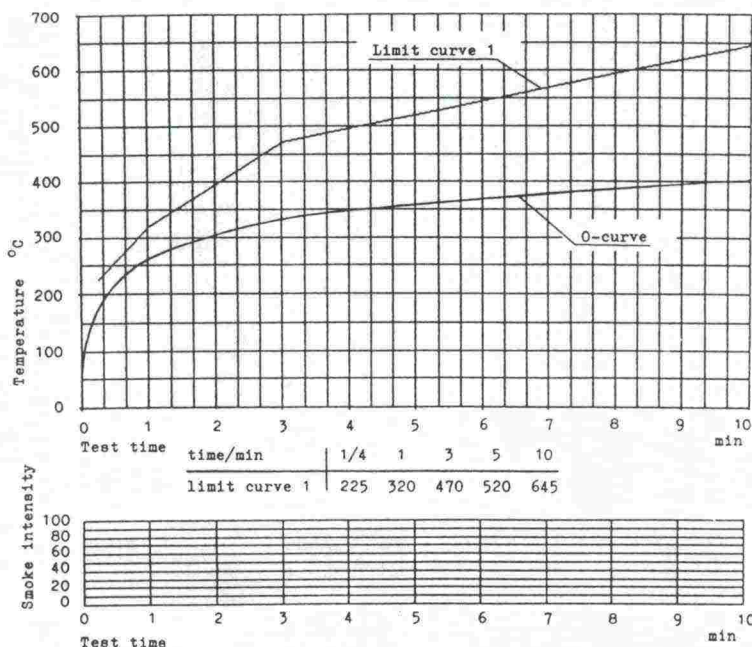
Test results are given as curves of gas temperature and smoke intensity in relation to time (see table below).

**3 Special requirements**

Approval of surface materials is, where necessary, based on consideration of the underlying layer(s) and dangers ensuing from fire, such as production of poisonous gases by heat, dripping, or steam production, or the danger of the surface material or part of it falling down.

The fastening method used for the surface material shall also be presented.

**TABLE**





## APPENDIX 4

**REQUIREMENTS FOR FLOOR COVERINGS****1 Test procedure**

The fire resistance of floor coverings is tested according to the standard SFS 4195, whose factual contents are the same as those of NORDTEST method NT FIRE 007.

**2 Criteria for approval**

Floor coverings are referred to class L provided they fulfil the following requirements in all tests:

- a) In the floor covering, flame will not spread further than to a distance of 550 mm from the centre of the flame;
- b) After the test, the underlay of the test specimen shall not be charred or otherwise damaged further than to a distance of 300 mm from the centre of the flame;
- c) The opaqueness of the smoke gases shall not, during the first five minutes of the test, exceed 30 units according to the test scale, and thereafter not 10 units.

At least three tests shall be undertaken. Floor coverings with a pile surface shall be subjected to two tests in the length direction and two in the breadth direction.

**3 Special requirements**

Approval of floor coverings will, where necessary, be made taking due consideration of the underlying structure(s).

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## APPENDIX 5

**SMOKE GENERATION AND TOXICITY TESTS; CRITERIA FOR APPROVAL**

The smoke generation and toxicity characteristics of materials are verified by means of the test procedure presented in IMO Resolution MSC.41(64) "Interim standard for measuring smoke and toxic products of combustion", whereby the classification criteria of paragraphs 6.1 and 6.2 shall be applied except as provided here:

- 1) Instead of the provisions in paragraph 6.1.2 of IMO Resolution MSC.41(64) for materials used as floor covering, the  $D_m$  shall not exceed 500 in any test condition for materials used as floor covering.
- 2) Instead of the provisions in paragraph 6.2 of IMO Resolution MSC.41(64), the gas concentration measured at each test condition shall not exceed the following limits:

CO	1450 ppm
HBr	600 ppm
HCl	600 ppm
HF	600 ppm
HCN	140 ppm
NO <sub>x</sub>	350 ppm
SO <sub>2</sub>	120 ppm

- 3) The concentrations of gases CO<sub>2</sub>, Acrolein and Formaldehyde mentioned in paragraph 6.2 of IMO Resolution MSC.41(64) need not be measured (i.e. they are not used as classification criteria).
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