INTERNATIONAL STANDARD

ISO 7165

First edition
1999-12-01

AMENDMENT 1
2004-05-01

Fire fighting — Portable fire extinguishers — Performance and construction

AMENDMENT 1: Class F

Lutte contre l'incendie — Extincteurs portatifs — Performances et construction
AMENDEMENT 1: Classe F

Reference number
ISO 7165:1999/Amd.1:2004(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to ISO 7165:1999 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 2, *Manually transportable fire extinguishers*.

Fire fighting — Portable fire extinguishers — Performance and construction

AMENDMENT 1: Class F

Pages 2 and 3, add the following terms and definitions:

3.1.5
Class F
fires in cooking appliances that involve combustible cooking media (vegetable or animal oils and fats)

3.18
wet chemicals
chemicals including, but not limited to, aqueous solutions of potassium acetate, potassium carbonate, potassium citrate, or combinations of these materials

Page 3, replace Clause 4 by the following:

4 Classification of extinguishers

Extinguishers shall be classified by the type of extinguishing medium that they contain. At present, the main classes of extinguishers are the following:

a) water-based;

b) powder;

c) carbon dioxide;

d) clean agents

These classes of extinguishers may be further sub-divided, for example water-based extinguishers may contain pure water or water with additives such as wetting agents, viscosity-increasing agents, flame-retardant, foaming agents or wet chemicals, etc.

Page 4, insert the following subclause:

5.1.5 Water-based agents

When the extinguishing agent has a pH exceeding 9.5, a warning statement shall be required for the extinguisher nameplate (see 10.2.2.2) of this Amendment.

Page 17, insert the following subclause:

8.1.5 Class F

Extinguishers recommended as suitable for Class F fires shall extinguish the appropriate test fires as described in 8.7 and pass the splash test requirements as described in 8.8. In addition, wet chemical type extinguishers shall meet the requirements of 8.6.

Page 17, replace 8.2.4 by the following:

8.2.4 Test schedule

The basic schedule of testing is a set of three fires. A Class A, Class B or Class F rating is achieved by extinguishing two out of three fires of the same size. Class D suitability for a particular metal or form of metal is established by extinguishing either the first fire of the set or, if this is not extinguished, extinguishing the second and third test fires.

A set comprises fires consecutively carried out and the result of any particular test fire is not to be disregarded. Each set is to be completed before another is started. For Class A, Class B and Class F fires, a set is completed either

— when all three test fires are carried out, or

— when the first two test fires are both successful or both unsuccessful.

For Class D fires, a set is complete

— when the first test is successful, or

— when the first and second fires are both unsuccessful, or

— when all three are carried out.

Now, on page 17, add the following subclause and renumber the subsequent subclauses:

8.2.2 Class F

All flames are completely extinguished. There shall be no re-ignition of the vegetable oil

— for 20 min after discharge, or

— until the temperature decreases to at least 35 °C below the auto-ignition temperature,

whichever is the longer.

Page 26, insert the following subclauses:

8.7 Class F test fire

8.7.1 Location

Carry out test fires indoors in a draught-free room of dimensions at least 6 m × 6 m, and 4 m high, and at an ambient temperature of between 10 °C and 30 °C.

8.7.2 Construction

Details of Class F fires are given in Table 10, Figure 4 and Figure 5.

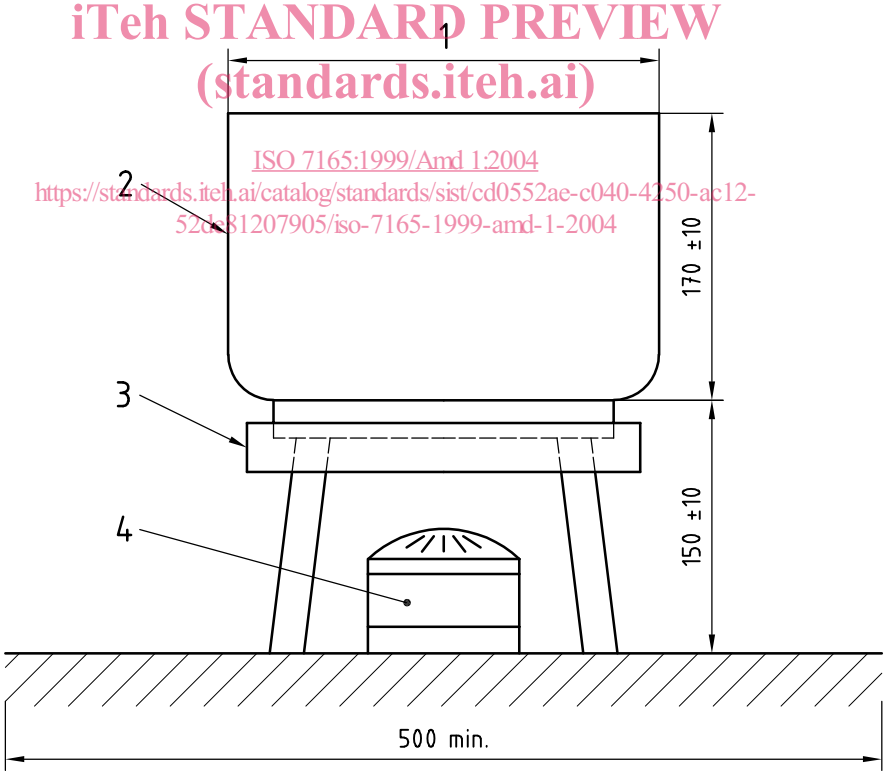
Class F test fires utilize a range of welded sheet metal trays (dimensions are given in Table 11 and Figures 7 and 8). The sides are vertical. The base of the trays are set horizontal and level with the surrounding ground or floor.

Each test fire is designated by a number followed by the letter F.

Table 10 — Fire rating and quantity of agent for Class F extinguishers

Rating	Volume of cooking oil in test fire litres	Test apparatus mm	Maximum agent quantity litres or kg
5F	5^{+1}_{0}	Type A diameter = 300	2
15F	15^{+1}_{0}	Type B $X = 448$ $Y = 224$	3
25F	25^{+1}_{0}	Type B $X = 578$ $Y = 289$	6
75F	75^{+1}_{0}	Type B $X = 1000$ $Y = 500$	9

Dimensions in millimetres

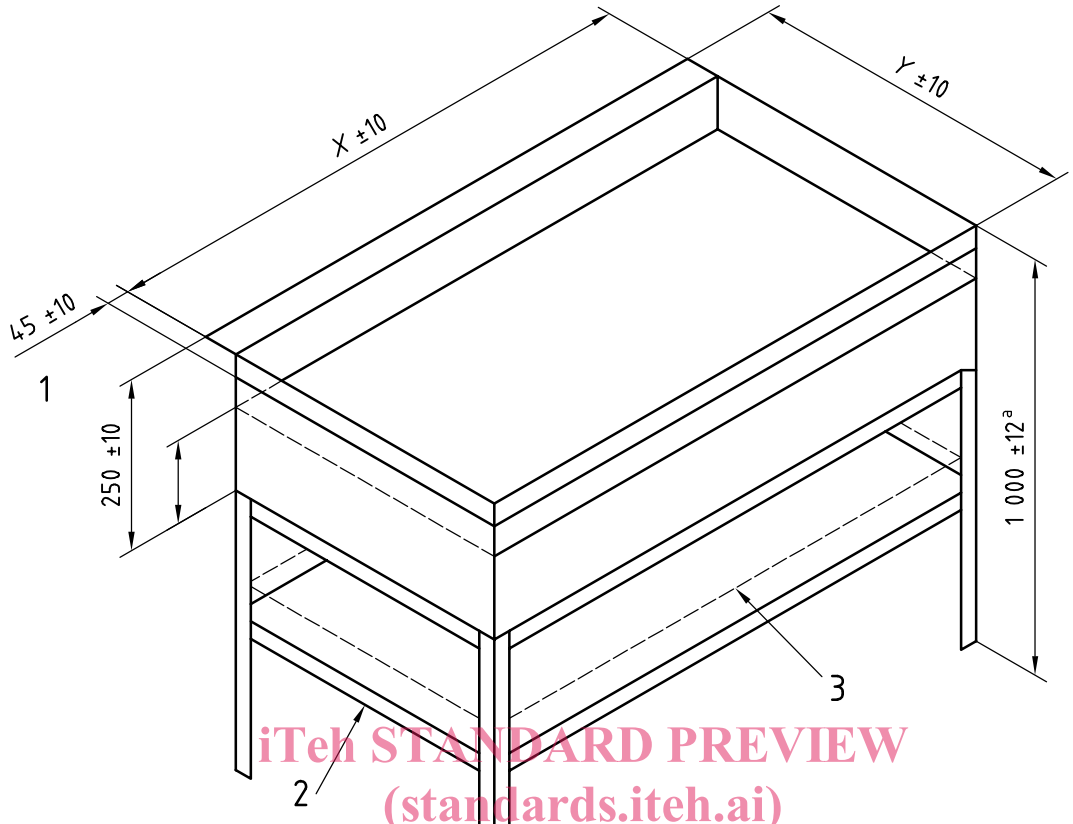


Key

1 Pan diameter
2 Nominal wall thickness: 2 mm
3 Skirt to suit burner type
4 Burner

Figure 4 — General dimensions for Class F test apparatus — Type A apparatus for Class 5F only

Dimensions in millimetres



Key

1 Top edge
2 Tray to support gas burners (alternatively electric heating may be used)
3 Skirt to contain flames for gas heating (to prevent piloted ignition)

a To floor level.

Figure 5 — General dimensions for Class F test apparatus — Type B apparatus for Class 15F, 25F and 75F

8.7.3 Fuel

Class F fires shall be conducted using a vegetable oil having an auto-ignition temperature of not less than 360 °C.

8.7.4 Procedure

8.7.4.1 Fire tests shall be carried out indoors. Heat the oil in the test tray using a suitable heating arrangement. Measure the oil temperature at a point 25 mm below the fuel surface, and not closer than 75 mm from the walls of the tray.

8.7.4.2 The tray shall be heated, uncovered, at the maximum input rate of the heating source. The heating arrangement shall increase the temperature of the fuel at a rate of (5 ± 2) °C and shall be recorded during the test between the temperature of 260 °C and the end of the test. Heat the oil until auto-ignition occurs.

8.7.4.3 At auto-ignition, allow the fire to burn freely for 2 min. The energy source shall be turned off at auto-ignition. After the 2-min preburn, discharge the extinguisher onto the tray continuously or intermittently until the extinguisher is fully discharged. The discharge of the extinguisher onto the tray shall be at the distance specified on the extinguisher marking, but in no case shall this be less than 1 m between the nozzle and the tray.

8.7.4.4 Use fresh fuel for each test.

8.8 Class F splash test

8.8.1 Location

Carry out test fires indoors in a draught-free room of dimensions at least 6 m × 6 m and 4 m high, and at an ambient temperature of between 10 °C and 30 °C.

8.8.2 Construction

Details of Class F fires are given in Table 10, Figure 4 and Figure 5.

Class F test fires utilize a range of welded sheet metal trays. The sides shall be vertical. The base of the trays shall be set horizontal and level with the surrounding ground or floor.

Each test fire is designated by a number followed by the letter F.

8.8.3 Fuel

Class F fires shall be conducted using a vegetable oil having an auto-ignition temperature of not less than 360 °C.

8.8.4 Procedure

8.8.4.1 The tray shall be heated, uncovered, at the maximum input rate of the heating source. The heating arrangement shall increase the temperature of the fuel at a rate of (5 ± 2) °C and shall be recorded during the test between the temperature of 260 °C and the end of the test. Heat the oil until auto-ignition occurs.

8.8.4.2 At auto-ignition the fire is to be allowed to burn freely for 2 min. The energy source shall be turned off at auto-ignition. After 2 min preburn, the extinguisher is to be discharged onto the tray continuously or intermittently until the extinguisher is fully discharged. The discharge of the extinguisher onto the tray shall be at the distance specified on the extinguisher marking, but in no case shall this be less than one metre between the nozzle and the tray.

8.8.4.3 Use fresh fuel for each test.

Two tests shall be carried out with the extinguisher conditioned as follows:

— Test 1: condition for at least 18 h at the maximum operating temperature;

— Test 2: condition for at least 18 h at the minimum operating temperature.

8.8.5 Determination

Place around the front and sides of the rectangular fire tray, or completely around the round fire tray, a flat metallic surface at least 750 mm wide with layer of sodium bicarbonate powder, not more than a 2 mm deep, on top of the surface. Heat the liquid oil in the fire tray by its heat source until a temperature of 175 °C to 190 °C is achieved. Each conditioned extinguisher shall be discharged toward the fire tray within 5 min of being conditioned, with the nozzle held at the distance specified by the manufacturer and shown on the nameplate, but not greater than 2 m. Measure the distance from the front edge of the tray to the nozzle.