

Implementation of
ISO 7203-2:1995

Fire extinguishing media — Foam concentrates —

**Part 2: Specification for medium and
high expansion foam concentrates for
top application to water-immiscible
liquids**

ICS 13.220.10

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The preparation of this British Standard was entrusted to Technical Committee FSH/18, Fixed fire fighting systems, upon which the following bodies were represented:

- AEA Technology
- Association of Building Engineers
- British Automatic Sprinklers Association
- British Fire Protection Systems Association
- British Fire Services' Association
- Chartered Institution of Building Services Engineers
- Chemical Industries Association
- Chief and Assistant Chief Fire Officers' Association
- Convention of Scottish Local Authorities
- Department of Health
- Department of the Environment (Building Research Establishment)
- Fire Brigades' Union
- Fire Extinguishing Trades Association
- Health and Safety Executive
- HEVAC Association
- Home Office
- Institute of Fire Safety
- Institution of Fire Engineers
- London Fire and Civil Defence Authority
- Loss Prevention Council
- Ministry of Defence
- National Association of Fire Officers
- Royal Institute of British Architects
- Society of Motor Manufacturers and Traders Ltd.
- Warrington Fire Research Centre

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National foreword

This British Standard reproduces verbatim ISO 7203-2:1995 and implements it as the UK national standard.

This standard is published under the direction of the Consumer Products and Services Sector Board whose Technical Committee FSH/18 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international committee any enquiries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related International and European developments and promulgate them in the UK.

This British Standard will be withdrawn when Parts 1 to 4 of the European Standard EN 1568 are published.

NOTE International and European Standards, as well as overseas standards, are available from Customer Services, BSI, 389 Chiswick High Road, London W4 4AL.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ISO title page, pages ii to iv, pages 1 to 22 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

INTERNATIONAL STANDARD

ISO 7203-2

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1995-12-15

Fire extinguishing media — Foam concentrates —

Part 2:

Specification for medium and high expansion foam concentrates for top application to water-immiscible liquids

Agents extincteurs — Émulseurs —

Partie 2: Spécifications pour les émulseurs moyen et haut foisonnements destinés à une application par le haut sur les liquides non miscibles à l'eau



Reference number
ISO 7203-2:1995(E)

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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.

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.

International Standard ISO 7203-2 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 6, *Extinguishing media for fire fighting*.

ISO 7203 consists of the following parts, under the general title *Fire extinguishing media — Foam concentrates*:

- *Part 1: Specification for low expansion foam concentrates for top application to water-immiscible liquids;*
- *Part 2: Specification for medium and high expansion foam concentrates for top application to water-immiscible liquids;*
- *Part 3: Specification for low expansion foam concentrates for top application to water-miscible liquids.*

Annexes A, B, C, D, E, F and G form an integral part of this part of ISO 7203. Annexes H and J are for information only.

Introduction

Firefighting foams are widely used to control and extinguish fires of flammable liquids and for inhibiting reignition. They may also be used to prevent ignition of flammable liquids and, in certain conditions, extinguish fires of solid combustibles.

Foams may be used in combination with other extinguishing media, particularly halons, carbon dioxide and powders, which are the subject of other International Standards including those listed below:

ISO 5923:1989, *Fire protection — Fire extinguishing media — Carbon dioxide*.

ISO 6183:1990, *Fire protection equipment — Carbon dioxide extinguishing systems for use on premises — Design and installation*.

ISO 7201-1:1989, *Fire protection — Fire extinguishing media — Halogenated hydrocarbons — Part 1: Specifications for halon 1211 and halon 1301*.

ISO 7201-2:1991, *Fire extinguishing media — Halogenated hydrocarbons — Part 2: Code of practice for safe handling and transfer procedures of halon 1211 and halon 1301*.

ISO 7202:1987, *Fire protection — Fire extinguishing media — Powder*.

A specification for foam systems designed in accordance with this part of ISO 7203 is being prepared and will be published as:

ISO 7076:—¹⁾, *Fire protection equipment — Automatic extinguishing systems for applying low, medium and high expansion foam*.

Attention is drawn to annex J which deals with the compatibility of foam concentrates, and the compatibility of foams and powders.

1 Scope

This part of ISO 7203 specifies the essential properties and performance of liquid foam concentrates used to make medium and/or high expansion foams for the control, extinction and inhibition of reignition of fires of water-immiscible liquids. Minimum performance on certain test fires is specified.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 7203. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 7203 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 304:1985, *Surface active agents — Determination of surface tension by drawing up liquid films*.

ISO 3310-1:1990, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

ISO 3734:1976, *Crude petroleum and fuel oils — Determination of water and sediment — Centrifuge method*.

ISO 7203-1:1995, *Fire extinguishing media — Foam concentrates — Part 1: Specification for low expansion foam concentrates for top application to water-immiscible liquids*.

BS 5117:1989, *Testing corrosion inhibiting, engine coolant concentrate (antifreeze) — Part 1: Methods of test for determination of physical and chemical properties — Section 1.3: Determination of freezing point*.

3 Definitions

For the purposes of this part of ISO 7203, the following definitions apply.

3.1 characteristic values

values declared by the foam concentrate supplier for the chemical and physical properties and the performances of the foam and foam solution

3.2 25 % drainage time

time for 25 % of the liquid content of a foam to drain out

3.3 50 % drainage time

time for 50 % of the liquid content of a foam to drain out

¹⁾ To be published.

**3.4
expansion**

ratio of the volume of foam to the volume of the foam solution from which it was made

**3.5
low expansion**

applied to foam with expansion in the range 1 to 20, and to associated equipment, systems and concentrates

**3.6
medium expansion**

applied to foam with expansion in the range 21 to 200 and to associated equipment, systems and concentrates

**3.7
high expansion**

applied to foam with expansion greater than 201 and to associated equipment, systems and concentrates

**3.8
foam (firefighting)**

aggregate of air-filled bubbles formed from an aqueous solution of a suitable foam concentrate

**3.9
(foam) concentrate**

liquid which, when mixed with water in the appropriate concentration, gives a foam solution

**3.10
protein foam concentrate (P)**

foam concentrate derived from hydrolyzed protein materials

**3.11
fluoroprotein foam concentrate (FP)**

protein foam concentrate with added fluorinated surface active agents

**3.12
synthetic foam concentrate (S)**

foam concentrate based on a mixture of hydrocarbon surface active agents and which may contain fluorocarbons with additional stabilizers

**3.13
alcohol-resistant foam concentrate (AR)**

foam concentrate resistant to breakdown when applied to the surface of alcohol or other polar solvents

**3.14
aqueous film-forming foam concentrate (AFFF)**

foam concentrate based on a mixture of hydrocarbon and fluorinated surface active agents with the ability to form an aqueous film on the surface of some hydrocarbons

**3.15
film-forming fluoroprotein foam concentrate (FFFP)**

fluoroprotein foam concentrate which has the ability to form an aqueous film on the surface of some hydrocarbons

**3.16
foam solution**

solution of foam concentrate and water

**3.17
forceful application**

application of foam to fall directly onto the surface of a liquid fuel

**3.18
gentle application**

application of foam indirectly to the surface of a liquid fuel via a backboard, tank wall or other surface

**3.19
sediment**

insoluble particles in the foam concentrate

**3.20
spreading coefficient**

measure of the ability of one liquid to spontaneously spread across the surface of another

4 Classification and uses of foam concentrates**4.1 Classification**

The foam concentrate shall be classified as medium and/or high expansion and shall comply with the appropriate requirements.

4.2 Use with sea water

If a foam concentrate is marked as suitable for use with sea water, the recommended concentrations for use with fresh water and sea water shall be identical.