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Small craft — Non-fire-resistant fuel hoses

Petits navires — Tuyaux souples pour carburant non résistants au feu

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 188, *Small craft,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 464, *Small craft*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 8469:2013), which has been technically revised.

The main changes compared to the previous edition are as follows:

— requirements for low permeation fuel hoses have been added in 6.8;

— the test fluids in 6.2 for petrol have been clarified;

— the test set-up in Figure A.1 has been revised to remove the vented capillary tube.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Small craft — Non-fire-resistant fuel hoses

1 Scope

This document specifies general requirements and physical tests for non-fire-resistant hoses for conveying petrol or petrol blended with ethanol, and diesel fuel or diesel fuel blended with FAME, designed for a working pressure not exceeding 0,34 MPa for hoses with inner diameter up to and including 10 mm, and 0,25 MPa for hoses up to 63 mm inner diameter in small craft. .

It applies to hoses for small craft with permanently installed fuel systems.

Specifications for fire-resistant hoses are given in ISO 7840:2021. Specifications for permanently installed fuel systems are given in ISO 10088:2013.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1402:2009, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 1817:2015, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 7233:2016, *Rubber and plastics hoses and hose assemblies — Determination of resistance to vacuum*

ISO 7326:2016, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

EN 14214:2012+A2:2019, *Liquid petroleum products — Fatty acid methyl esters (FAME) for use in diesel engines and heating applications — Requirements and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
FAME
fatty acid methyl ester
fuel composed of mono-alkyl esters of long-chain fatty acids derived from vegetable oils or animal fats

Note 1 to entry: The physical characteristics of fatty acid esters are closer to those of fossil diesel fuels than pure vegetable oils, but properties depend on the type of vegetable oil.

[SOURCE: ISO 16147:2020, 3.7, modified — Note 1 to entry has been added.]

3.2
tube
interior liner of the fuel hose that is normally in contact with the fuel

3.3
cover
outer jacket of the fuel hose, intended to provide weather and ozone protection for the *tube* (3.2)

3.4
craft
small craft
recreational boat, and other watercraft using similar equipment, of up to 24 m length of hull (L_H)

Note 1 to entry: The measurement methodology for the length of hull is defined in ISO 8666.

[SOURCE: ISO 8666:2020, 3.15, modified – Note 1 to entry has been added.]

4 General requirements

Hoses shall present a smooth inner surface free from pores, other defects and chemical contaminants.

Hoses shall demonstrate suitability for marine use by complying with the requirements of the tests in Clause 6. Hoses intended to be used for both petrol and diesel fuels shall be tested with both test fluids separately in sections requiring preconditioning. They shall be marked according to Clause 7.

5 Hose inner diameter

Table 1 provides the inner diameters and tolerances.

Table 1 — Inner diameters and tolerances

Dimensions in millimetres

Inner diameter, *d*	Tolerance
3,2 4 5	±0,5
6,3 7 8 9,5 10 12,5 16 19 20	±0,75
25 31,5 38	±1,25
40 50 63	±1,5