

Refrigerated light hydrocarbon fluids — Calibration of membrane tanks and independent prismatic tanks in ships — Physical measurement

The European Standard EN ISO 8311 : 1995 has the status of a
British Standard

ICS 75.200

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Petroleum Standards Policy Committee (PTC/-) to Technical Committee PTC/12, upon which the following bodies were represented:

- Department of Energy (Gas and Oil Measurement Branch)
- Department of Trade and Industry (National Engineering Laboratory)
- Department of Transport (Marine Directorate)
- GAMBICA (BEAMA Ltd.)
- Institute of Petroleum
- Royal Institution of Naval Architects
- Salvage Association

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Amendments issued since publication

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Summary of pages

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Change of identifier

Wherever BS 7627 : 1993 appears in this standard, it should be read as BS EN ISO 8311 : 1996.

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National foreword

This British Standard has been prepared by Technical Committee PTI/12 (formerly PTC/12) and is the English language version of EN ISO 8311 : 1995 *Refrigerated light hydrocarbon fluids — Calibration of membrane tanks and independent prismatic tanks in ships — Physical measurement* published by the European Committee for Standardization (CEN). It is identical with ISO 8311 : 1989 published by the International Organization for Standardization (ISO).

Cross-references

ISO 4512, to which normative reference is made, is in preparation. The Technical Committee has reviewed the drafts of ISO 4512 and, based on them, prepared national annex NA. Pending publication of ISO 4512 measuring tapes conforming to national annex NA should be used.

The reference to ISO 7507-1 is in fact informative, not normative, and thus the fact that it is in preparation does not affect the validity of the standard.

Caution. Attention is drawn to the Health and Safety at Work etc. Act 1974, and the need for ensuring the method specified in this British Standard is carried out with suitable precautions.

The procedure described in this British Standard is intended to be carried out by appropriately qualified and experienced persons or other suitably trained and/or supervised personnel. Normal safety precautions should be observed throughout the use of the method. Attention is drawn to the additional safety precautions given in annex A.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

ICS 75.200

Descriptors: Petroleum products, hydrocarbons, light hydrocarbons, tanks (containers), capacity measurement, calibration

English version

**Refrigerated light hydrocarbon fluids — Calibration of membrane tanks and independent prismatic tanks in ships —
Physical measurement**
(ISO 8311 : 1989)

Hydrocarbures légers réfrigérés — Etalonnage des réservoirs à membrane et réservoirs pyramidaux — Mesurage physique
(ISO 8311 : 1989)

Verflüssigte leichte Kohlenwasserstoffe — Kalibrierung von Membrantanks und unabhängigen Prismentanks in Schiffen — Physikalische Messung
(ISO 8311 : 1989)

This European Standard was approved by CEN on 1995-09-09. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
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Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Foreword

The text of the International standard from ISO/TC 28, Petroleum products and lubricants, of the International Organization for Standardization (ISO) has been taken over as a European Standard by the Technical Committee CEN/TC 19, Petroleum products, lubricants and related products.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 1996, and conflicting national standards shall be withdrawn at the latest by April 1996.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Large quantities of light hydrocarbons consisting of compounds having 1 to 4 carbon atoms are stored and transported by sea as refrigerated liquids at pressures close to atmospheric. These liquids can be divided into two main groups, liquefied natural gas (LNG) and liquefied petroleum gas (LPG). Bulk transportation of these liquids requires a special technology in ship design and construction to enable shipborne transportation to be safe and economical.

Measurement of cargo quantities in ships' tanks for custody transfer purposes has to be of a high order of accuracy. This International Standard, together with others in the series, specifies methods of internal measurement of ships' tanks from which tank calibration tables can be derived.

This International Standard covers calibration techniques applicable to membrane type tanks, i.e. tanks in which the containment system comprises a relatively thin membrane of either stainless steel or high-nickel steel alloy supported by insulation and also, with some modifications, to tanks constructed of aluminium alloy or steel for low-temperature service that are independent, self-supporting and approximately prismatic in shape.

Annex A gives recommendations on safety precautions to be observed during the calibration.

Annex B gives an analysis of the sources of error for a typical membrane tank.

Annex C gives an example of a calibration table relating partial filling volume as a function of liquid level and annexes D, E and F give examples of trim, list and temperature correction tables.

