



**International  
Standard**

**ISO 8216-1**

**Products from petroleum, synthetic  
and renewable sources — Fuels  
(class F) classification —**

**Part 1:  
Categories of marine fuels**

*Produits d'origine pétrolière, synthétique ou renouvelable —  
Classification des combustibles (classe F) —*

*Partie 1: Catégories des combustibles pour la marine*

**Sixth edition  
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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 document 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](http://www.iso.org/directives)).

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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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*, Subcommittee SC 4, *Classifications and specifications*.

This sixth edition cancels and replaces the fifth edition (ISO 8216-1:2017), which has been technically revised.

The main changes are as follows:

- the maximum FAME content of ISO-F-DF grades has been increased to 100 % by mass;
- ISO-F-RM grades have been added in [Table 1](#) for residual fuels with a sulfur content at or below 0,50 % by mass or 0,10 % by mass;
- ISO-F-RF grades have been added in [Table 1](#) for residual fuels including FAME, the content of which is agreed between the buyer and the seller;
- the number of ISO-F-RM grades for residual fuels has been reduced. These grades are now for residual fuels with a sulfur content exceeding 0,50 % by mass.

A list of all parts in the ISO 8216 series can be found on the ISO website.

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](http://www.iso.org/members.html).

## Introduction

The classification in this document was prepared in cooperation with ship owners, ship operators, shipping associations, national standards bodies, classification societies, fuel testing services, engine designers, fuel treatment equipment manufacturers, marine fuel suppliers, fuel additive suppliers and the petroleum industry to meet the requirements for marine fuels supplied on a world-wide basis for consumption on board ships.

The increased focus on environmental concerns and legislation to address them are leading to a transition in the nature of marine fuels. There is a shift away from marine fuels supplied from traditional oil products derived from the processing of petroleum crude, and a shift towards oil products derived from renewable and/or alternative sources. The classification takes into consideration the diverse nature of these fuels and incorporates a number of categories of distillate and residual fuels, even though it is possible that not all categories are available in every supply location.

The subcategories (M) for middle distillate fuels and (H) for heavy distillate fuels of ISO-F-D originally described in ISO 8216-99 have not been used in this document, to avoid misunderstanding with M and H used in [Clause 4](#).

Specifications of marine fuel categories are given in ISO 8217.



# Products from petroleum, synthetic and renewable sources — Fuels (class F) classification —

## Part 1: Categories of marine fuels

### 1 Scope

This document defines the detailed classification of marine fuels within class F (fuels). It is intended to be read in conjunction with ISO 8216-99.

NOTE Class F for fuels was originally defined as part of the method of classification for petroleum products given in ISO 8681.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1

##### **fatty acid methyl ester**

##### **FAME**

ester derived by (trans-) esterification of fats and oils of vegetal or animal origin

### 4 Explanation of symbols used

The detailed classification of marine fuels into categories of products has been established by defining the main applications and characteristics of the products from two families of fuels given in ISO 8216-99: “D” for distillate fuels and “R” for residual fuels.

According to ISO 8216-99, the products are designated by a symbol consisting of a group of letters which together constitute a code.

This code consists of the following information:

- a) the initials “ISO”;
- b) the letter “F” for the class of fuel;
- c) the category of fuel, consisting of:
  - 1) the family letter: “D” for distillate or “R” for residual type fuel,