INTERNATIONAL STANDARD

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Petroleum products — Fuels (class F) — Classification —

Part 99: General

Produits pétroliers — Combustibles (classe F) — Classification —

Partie 99: Généralités

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 part of ISO 8216 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8216-99 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 4, *Classifications and specifications*.

This first edition cancels and replaces ISO 8216-0:1986, which has been technically revised.

ISO 8216 consists of the following parts, under the general title *Petroleum products — Fuels (class F) — Classification*:

— *Part 1: Categories of marine fuels*

— *Part 2: Categories of gas turbine fuels for industrial and marine applications*

— *Part 3: Family L (Liquefied petroleum gases)*

— *Part 99: General*

Petroleum products — Fuels (class F) — Classification —

Part 99: General

1 Scope

This part of ISO 8216 establishes a general system of classification which applies to petroleum fuels designated by the prefix letter “F”.

Within class F, five families (designated as categories) of products are defined according to the type of fuel and listed in decreasing order of volatility. One category, D, is defined further by subgroups on the basis of volatility and flash point, because of the safety implications of different customary titles for such fuels in different parts of the world. Subgroup L (light distillate) is a highly volatile liquid fuel with a closed-cup flash point below normal ambient temperature, and thus may require special hazard precautions not necessary for subgroups M and H.

The detailed classification of a family, taking into account complementary elements according to the uses, type and properties, define particular products in each category, and are given in relevant parts of ISO 8216 as the need arises.

NOTE 1 Petroleum fuels only meet the requirement of this part of ISO 8216 if these fuels, or their components, have not been used for any other purposes prior to their preparation.

NOTE 2 Class F for fuels has been defined as part of the method of classification for petroleum products given in ISO 8681.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 8216. For dated references, subsequent amendments to, or revisions of, this publication do not apply. However, parties to agreements based on this part of ISO 8216 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 8681:1986, *Petroleum products and lubricants — Method of classification — Definition of classes*

3 Explanation of symbols

3.1 In this classification system, and according to ISO 8681, products are designated in a uniform manner by a symbol consisting of a group of letters, which together constitute a code, for example ISO-F-DST-2.

This code consists of the following.

— The initials ISO.

— A first letter, which designates the class (“F” for fuel). This letter shall be clearly separated from the other symbols.

— A group of letters (from one to four), which designates the category of fuel. The first letter of this group always identifies the family of the fuel and, in the case of family D, will include a further letter in parentheses, (refer to the note in 3.2). Any following letters taken separately may or may not have a significance of their own.

— A number, which may be used to designate a particular characteristic. It will be defined in the relevant part of ISO 8216.

3.2 The code shall be designated in the complete form in relevant classification documentation or product marking, but an abbreviated format is acceptable within the text of a document (for example, specifications) where the ISO reference is clearly implied.

NOTE A full reference example is ISO-F-D(M)ST-2, which may be reduced to F-DST-2 in an ISO document where the properties are described in such a manner that there is no conflict with (L) or (H) subgroups.

4 Classification of petroleum fuels

4.1 General

The general classification for petroleum fuels is given in Table 1. The use of the subgroup classification for category D fuels is optional in product titles, but in the text shall always include the subgroup unless the relevant reference applies to all subgroups. The subgroups are described further in 4.2.

Table 1 — Classification of petroleum fuels

Category	Subgroup	Definition of families
G	—	Gaseous fuels: Gaseous fuels of petroleum origin consisting essentially of methane and/or ethane.
L	—	Liquefied petroleum gases: Gaseous fuels consisting essentially of C_3 and C_4 alkanes or alkenes or mixtures of these, containing less than 5 % by liquid volume of material of higher carbon number.
D	(L) (M) (H)	Distillate fuels: Liquid fuels of petroleum origin obtained essentially by the processing of crude petroleum or separation from petroleum gases. Light and middle distillate fuels contain no residues from processing, but heavy distillate fuels may contain a small quantity of residue introduced during blending, handling and/or transportation, which should be limited by specification. Light distillate fuels with high volatility and very low closed-cup flash points may require special hazard precautions.
R	—	Residual fuels: Liquid fuels containing the residues from petroleum processing. Components of non-petroleum origin should be limited by specification.
C	—	Petroleum coke: Solid fuels of petroleum origin consisting essentially of carbon, obtained from the severe processing of crude petroleum or feedstocks.

4.2 Subgroups of category D fuels

4.2.1 Subgroup (L)

Subgroup (L) is used, together with the term “light distillate” to describe naphthas and gasolines boiling below 230 °C, and with closed-cup flash points below ambient temperature. This subgroup shall always be identified in text so that appropriate hazard precautions are highlighted.

4.2.2 Subgroup (M)

Subgroup (M) is used, together with the term “middle distillate” to describe kerosines and gas oils boiling between approximately 150 °C and 400 °C, and with closed-cup flash points above 38 °C.

4.2.3 Subgroup (H)

Subgroup (H) is used, together with the term “heavy distillate” to describe fuels and feedstocks that contain substantial quantities of asphaltene-free material boiling above 400 °C, and with closed-cup flash points considerably above 60 °C.

NOTE Vacuum gas oil (VGO), flashed distillate, certain marine fuels and material obtained from solvent extraction fall into this subgroup.

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