



SLOVENSKI STANDARD
SIST-TP CEN/TR 15738:2008
01-december-2008

Naftni proizvodi - Kurilna olja - Potreba, izvedljivost in izsledki za pripravo skupne evropske specifikacije

Petroleum products - Heating fuels - Need, feasibility and required deliverables for a common European specification

Erdölprodukte - Heizöle - Notwendigkeit, Möglichkeit und erforderliche Deliverables für eine allgemeine europäische Spezifikation

Produits pétroliers - Fioul domestique - Besoin, faisabilité et livrables pour des spécifications européennes communes

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ICS:

75.160.20 V^\[æ\ [!ãæ Liquid fuels

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TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

CEN/TR 15738

September 2008

ICS 97.100.40; 75.160.20

English Version

Petroleum products - Heating fuels - Need, feasibility and required deliverables for a common European specification

Produits pétroliers - Fioul domestique - Besoin, faisabilité et livrables pour des spécifications européennes communes

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This Technical Report was approved by CEN on 23 March 2008. It has been drawn up by the Technical Committee CEN/TC 19.

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Contents

Page

Foreword.....	4
Introduction.....	5
1 Summary.....	6
2 Scope	6
3 Market information	6
3.1 Definitions	6
3.2 Volumes	7
3.3 Market of burner and boiler equipment.....	11
4 Fuel specifications including alternative components.....	11
4.1 Europe.....	11
4.2 Alternative components.....	12
4.3 Heating oils.....	12
5 Legislation	12
5.1 Introduction.....	12
5.2 European Directives	12
5.3 National Legislation.....	13
5.4 Tax regulations	13
6 Distribution systems	15
6.1 General.....	15
6.2 UK, Ireland, Netherlands and France.....	15
6.3 Spain	15
6.4 Norway	15
6.5 Germany, Austria, Italy and Greece	16
6.6 Finland	16
6.7 Belgium.....	16
6.8 Portugal	17
6.9 Denmark.....	17
6.10 Sweden	17
6.11 Poland.....	17
7 Statement of European Heating Industries.....	17
8 Discussions and conclusion	18
8.1 General conclusion	18
8.2 LHO volume.....	18
8.3 Market	18
8.4 LHO specifications	19
8.5 LHO qualities.....	19
8.6 LHO distribution systems	19
8.7 National Regulations and taxes / duties.....	20
8.8 European LHO standard or reference fuel	20
Annex A (informative) WG 25 “Specification of heating fuel” membership	21
Annex B (informative) LHO Standards overview	22
Annex C (informative) Regulations regarding markers and dyes	26
Annex D (informative) LHO sulfur content	27
Annex E (informative) Excise duty tables of gas oil	28

Annex F (informative) Excise duty in relation to sulfur content	30
Annex G (informative) Excise duty tables of kerosene	31
Annex H (informative) Excise duty for LHO	33
Annex I (informative) Gas oil quality specification.....	34
Bibliography.....	35

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[SIST-TP CEN/TR 15738:2008](https://standards.iteh.ai/catalog/standards/sist/03e770c7-e634-41e7-949a-b67fd54feb2/sist-tp-cen-tr-15738-2008)

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CEN/TR 15738:2008

Foreword

This document (CEN/TR 15738:2008) has been prepared by Technical Committee CEN/TC 19 "Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin", the secretariat of which is held by NEN.

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Introduction

In Europe the subject of a common standard for heating fuels is not new. This topic often arises in times of change related to heating fuel qualities or stronger market competition.

In discussions in the early 2000s on new low-sulfur light heating oil (LHO) qualities the question of a common European standard for LHO was raised again in the mineral oil industry. In 2001, GEME, Non-Road Fuels Task Force of CONCAWE (The Petroleum Companies Organization for Conservation of Clean Air and Water in Europe), released a report on fuel specifications [1]. This report contains an overview on market volumes, specifications and distribution systems for middle distillates including LHO at that time. The resulting conclusions showed significant differences in the markets and that the most cost effective solution in 2001 was to adopt the situation as it was, i.e. different approaches in different Member States.

In joint meetings of the common Technical Board (TB) of the Association of European Heating Industries (EHI) and Eurofuel (The European Heating Oil Association) the question of a common European LHO standard was again discussed. The reason for pursuing the discussion about standardization work on LHO was argued by EHI in the context of harmonization within the European markets. Therefore the need for a common European standard analogous to EN 590 [2] for automotive diesel fuel was envisaged.

Furthermore, the finalization of standardization work for FAME in 2003 as a blending component for heating fuels, and as a heating fuel itself, supported the question "Why doesn't European standard exist for LHO?" This question was pushed by some market participants mainly by members of Eurofuel but also by some members of the mineral oil industry. Based on this the subject of a common European standard for heating fuels was discussed at the CEN/TC 19 plenary meeting in Oslo, 1-3 June 2005. The result of the discussion is reported in CEN/TC 19 document N 1254 as resolution 51: "CEN/TC 19 requests the WG 25 convener to report back on requirements, feasibility and needed deliverables concerning a European Standard on liquid (heating) fuel before July 2006".

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Receiving that request, CEN/TC 19/WG 25 started, after reconvening the group in April 2006 (see Annex A), to collect information and data. The conclusions of the report were presented at the CEN/TC 19 plenary meeting in May 2007 and thereafter being balloted for Technical Committee Approval. The text being accepted, some of the informative data on taxes were updated to the most recently available information.

Within this report the ideas of the European mineral oil industry and those from EHI have been considered.

CEN/TR 15738:2008**1 Summary**

Although the EUROSTAT definition of “medium distillates” includes residual fuel oil, the technical experts in CEN/TC 19/WG 25 (see Annex A) decided that this was outside of the scope of the study and that it was not necessary to develop a CEN standard for residual fuel oils.

Technically it would be ambitious, although not impossible, to establish a common European LHO standard. However, other considerations must be taken into account when deciding on a common LHO standard.

The majority of the WG 25 members see no real benefit or necessity for standardising LHO on a European level. Multiple uses of LHO qualities in some countries is well serviced by the existing supply chain, while for other countries it would require separate processing or additional infrastructure installation. The impact on refinery process technology as well as on refinery economics has to be evaluated on a European level (crude selection, investments in plant technology, separated storage facilities). A cost benefit analysis would be needed to justify such a large investment.

A common European LHO standard could affect national legislation/regulation in many Member States. Therefore a political decision applying an EC Mandate may be required giving a clear indication that the necessary changes in national legislation/regulation will be applied by each member state. This question is far beyond WG 25 working content limits. The scope of WG 25 is limited to deal with standardisation of heating fuels and related technical questions.

There is a belief that harmonisation of LHO standards could reduce production costs for oil heating equipments. It could ease export of oil heating equipment within Europe and open up new markets to manufacturers. However, the vast majority of experts of WG 25, based on the information made available by EHI, do not accept these as enough justification to establish a European LHO standard as it will not fully address the concerns expressed.

It is the WG 25 opinion that improving the reference fuel specification described in EN 267 [3] for this application would assist in type approval for the equipment manufacturers. Thus, it would address the concern of the heating equipment industry.

2 Scope

This report gives background information about LHO market volumes, fuel specifications, regulations, taxes, duties, logistics and distribution systems for LHO in different European countries.

It assesses the necessity, and whether it is appropriate, to recommend the development of a CEN standard for liquid heating fuels.

3 Market information

NOTE All market statistical data submitted in this report are based on publications of the International Energy Agency (IEA) and Eurostat. Data reported for Switzerland were submitted by the Swiss Federal Statistical Office. All data had been summarized by the Austrian Energy Agency (AEA) in a special report [4].

3.1 Definitions

According to the European Energy Balances¹, the group “medium distillates” covers three main product groups:

¹ Definitions taken from "The Eurostat Concepts and Definitions Database".

- a) gas oil / diesel: primarily a middle distillate with a distillation range of 180 °C to 380 °C, used as transport diesel (road and non-road diesel), for heating and for other gas oil purposes (marine, rail traffic, agriculture and petrochemical feed stock), blending components are included.
- b) kerosene / jet fuels: covers kerosene-type jet fuels and other kerosene, these fuels are atmospheric distillates having a volatility intermediate between those of gasoline and gas oil, with a distillation range generally between the limits of 100 °C and 300 °C, includes kerosene blending components.
- c) residual fuel oil: covers heavy fuel oils including residual components with a kinematic viscosity above 10 cSt at 80 °C (>6 cSt/100 °C), the flash point is always above 50 °C, the density higher than 0,9 g/cm³.

For the product range concerned in this document the term light heating oil, LHO, is used.

Although the definition of “medium distillates” includes residual fuel oil, the technical experts in CEN/TC 19/WG 25 decided that this was outside of the scope of the study and that it was not necessary to develop a CEN standard for residual fuel oil. Therefore, the data for residual fuel oils has not been included in this report (for details of justification see also 7 and 8).

The product groups “gas oil/diesel” and “kerosene/jet fuels” are described further on as “middle distillates” (MD) in this report.

The data from Eurostat is referenced both by sectors and on country basis. The definition of the different sectors from Eurostat is given below² :

- households: covers the consumption of fuels used for space heating, cooking and water heating;
- road transport: covers diesel used in passenger cars, commercial vehicles and public service vehicles, including those operated by railway companies;
- inland navigation: covers the consumption of fuels used by inland commercial shipping and leisure craft;
- rail transport: covers the consumption by railways and urban transport systems;
- air transport: covers quantities consumed in aircraft in national and international air traffic;
- industry: covers the consumption of MD in all industrial sectors with the exception of the “Energy sector”;
- services: covers the consumption by public administration and private services;
- agriculture: covers the quantities consumed by agriculture, including engines used for agricultural transportation.

3.2 Volumes

The different uses of MD cannot be compared directly by country in detail as each country has its own classification system due to differing usage, tax and national specifications. Therefore the Eurostat statistics can only provide an approximate overview of the different uses of MD in Europe. The data from 2004 is the latest complete data set reported.

Table 1 shows the final energy consumption of the product groups “gas oil / diesel” and “kerosene / jet fuels” in 2004 within the EU 25. A split into different consumption sectors allows some allocations of the fuels used and is shown in Table 2. The European Energy Balances do not provide separate statistics for gas oil and diesel. In order to estimate the consumption of diesel and gas oil for each sector some assumptions have to

² Definitions taken from “The Eurostat Concepts and Definitions Database”.

CEN/TR 15738:2008

be made. Energy stream analysis allows rough estimations. As the use of LHO in the sectors agriculture and industry are not reported separately, the amount could only be estimated.

Table 1 — MD 2004 consumption in the EU 25

MD 2004	kt	%
kerosene / jet fuels	51 398	16,5
gas oil / diesel	260 821	83,5
total	312 219	100,0

After some discussion the experts of WG 25 decided to share the use of MD in the sectors of agriculture and industry between diesel and gas oil in a ratio of 80/20 as the best assumption on the basis of all available information. The amount of MD for the sector services will be shared between diesel and gas oil in the ratio of about 40/60.

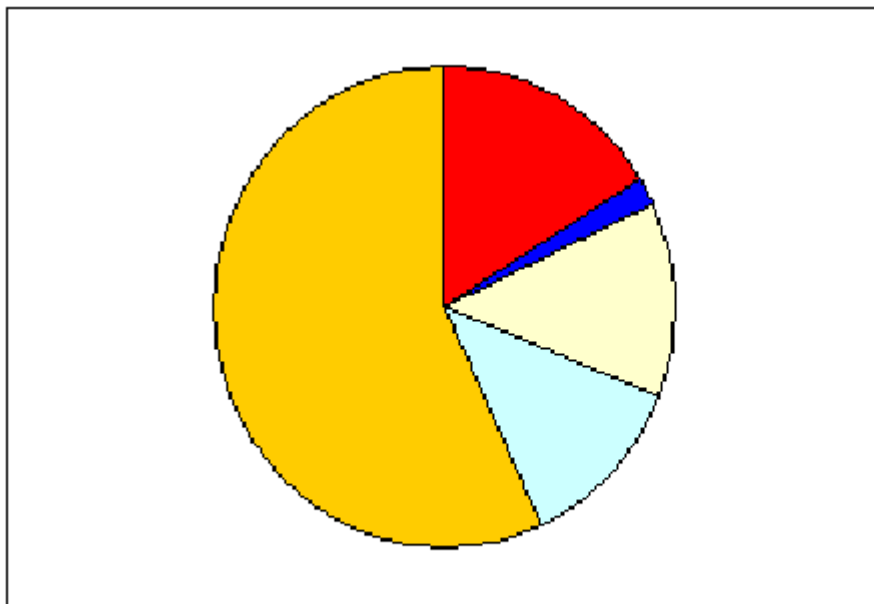
Table 2 — MD consumption during 2004 in the EU25 within different sectors (kt)

Sector	Diesel kt	Gas oil kt	Kerosene kt
Road transport ³	164 671	-	-
Households	-	41 336	3 495
Services	7 669	10 810	617
Agriculture	12 362	3 091	-
Industry	11 768	2 942	1 645
Inland navigation	3 711	-	-
Railway	2 461	-	-
Air transport	-	-	45 641
Total	202 642	58 179	51 398

Using the above assumptions, the total consumption of MD (gas oil and kerosene) for heating purposes can be allocated to the consumer groups: households, partially agriculture, industry and services. The total amount within EU 25 in 2004 is therefore about 58 000 kt, that is a share within MD of about 18 % (i.e. Figure 1) [4].

As Switzerland is not a member of EU 25 but a significant user of LHO, 5 051 kt must be added to the consumption tables in 2004. Similarly for Norway an additional 595 kt LHO and 125 kt kerosene for heating purposes [5] has to be considered. Summarising the assessed data, heating oils within Europe in 2004 on the product bases of kerosene and LHO had a total market share of about 20 % within the MD segment or an estimated quantity of about 64 000 kt.

³ Some small amounts are used as heating oil.



Key

- | | | | |
|---|---------------------------------|---|----------------------------|
| A | Gas oil for heating 16 % | D | Gas oil for other use 12 % |
| B | Kerosene for heating 2 % | E | Gas oil for transport 57 % |
| C | Kerosene for air transport 13 % | | |

Figure 1 — Share of MD for heating purposes within EU 25 in 2004 in %

It can also be seen that there are significant differences in the individual markets, with Germany and France using by far the largest quantity of LHO (over 50 % of the total EU demand). Figure 2 shows the estimated share of consumption of MD (gas oil and kerosene) for heating purposes per country in the EU 25, including Switzerland and Norway in 2004 in kilo tonnes.

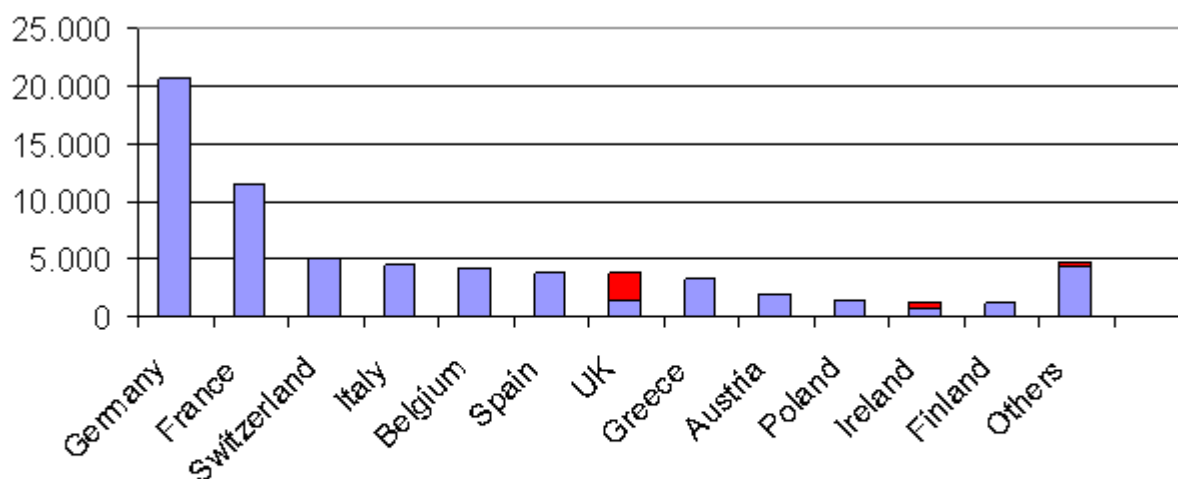
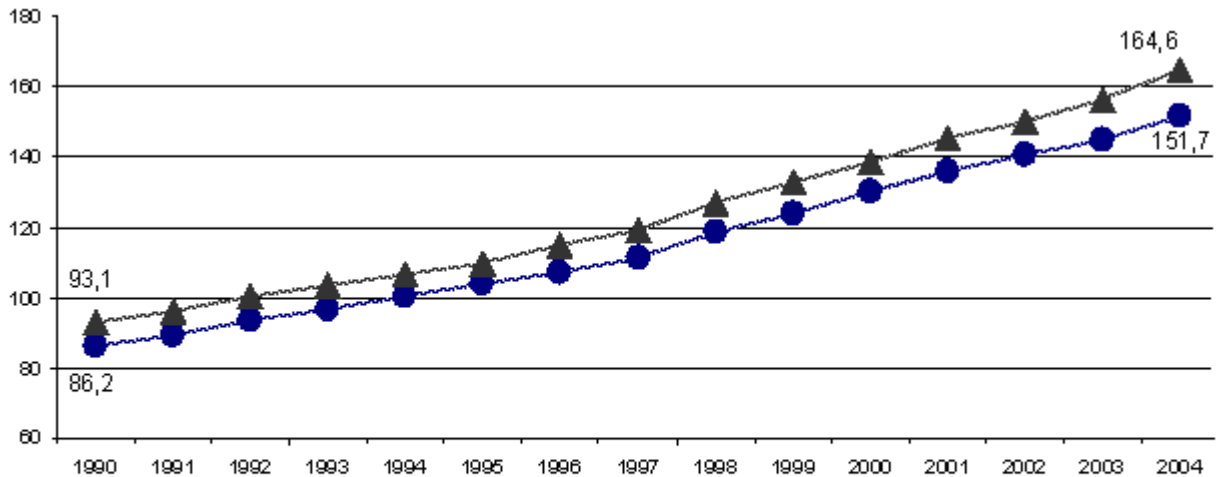


Figure 2 — Estimated share of consumption in kt of MD for heating purposes in 2004

CEN/TR 15738:2008

The evaluation of the European MD market shows a significantly increasing use of diesel for road traffic. Figure 3 shows that diesel consumption in the road traffic sector in EU 25 had increased by 77 % in the period from 1990 to 2004⁴. This development was significantly related to an increasing demand for road transport services (goods and passengers) and an increasing rate of individual mobility⁵. According to the International Energy Outlook 2006 [6] it is expected that this development will continue for the next decade.



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Key

- EU 15

△ EU 25

Figure 3 — Consumption in kt of diesel in road transport in the EU

Compared to road transport the consumption of heating oils has declined within the period from 1990 to 2004. This can clearly be seen, for example, in the households sector⁴ (e.g. Figure 4).

⁴ Source: Eurostat, Austrian Energy Agency

⁵ E.g. in the EU 15 the total transport of goods increased by 14 % from 1993 to 2004 and the share of road transport in the total transport of goods increased from 75,6 % to 79,2 % in 2004 (source: EUROSTAT).