ISO/TC 28 Petroleum products and lubricants

Secretary: **Paula Watkins, American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, USA**
Tel: +1 202 682 8197 Fax: +1 202 962 4797 E-Mail: *watkinsp@api.org*

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To: **P-members**
O-members
L-members

Copy to: **ISO/CS**

Dear Members,

Report of CEN/TC 19

Please find attached the CEN/TC 19 report for presentation at the 22nd meeting of ISO/TC 28. The report will be discussed under agenda item 10.1.

Yours sincerely

Paula Watkins

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Secretary to ISO/TC 28

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

22nd meeting of ISO/TC 28, November 2002 Milan
CEN/TC 19 Liaison Report

SUMMARY OF ACTIVITIES

1) Fuel specifications and test methods (WG 21, 23, 24)

At the moment the text of the fuel specifications EN 228 (petrol), EN 589 (LPG) and EN 590 (diesel) have been revised by the Working Groups. Addition and updating of the test methods for sulfur (UVF, WDXRF and EDXRF), benzene, olefins and aromatics (multi-analyzer method), water content, flash point and ash are the main changes. The sampling methods (ISO/DIS 3170, ISO 3171 and ISO 4257) hav been updated and the finalization of the manual sampling method is awaited. Last main update is that for EN 590 the possibility to blend up to 5% biodiesel is allowed. The specifications incorporated are those the European Commission envisages for the revision of the European Fuels Directive in 2005. Lowering the sulfur level to 50ppm in 2005 and to an expected limit of 10 ppm in 2009 is the most remarkable. The revised standards will be published by CEN fast-track procedure (UAP), expecting final publication in fall 2003.

Most of the referenced test methods in the European fuel specification standards are developed and published by ISO/TC 28 (Parallel processing under "Vienna Agreement"). This close cooperation with ISO/TC 28 is highly appreciated as long as this will not cause any delay as compared to the normal CEN route.

CEN/TC 19/WG 27 has finalised a study with 102 laboratories on five low sulfur determination methods, including three new versions. These have been worked on in thankful cooperation with ISO/TC 28 towards prEN ISO/DIS at the moment. Based on the study the specifications for petrol and diesel now identify fluorescence spectroscopy via UV (ISO 20846), wavelength (ISO 20884) and energy dispersive X-ray (ISO 20847) testing as accustomed to measure low levels of sulfur. The study could not discriminate between UVF and WDXRF at 50 ppm and 10 ppm levels on the basis of accuracy.

2) Mandate M/238 "Fire-resistant hydraulic fluids" (WG 28)

The parallel development of standards to comply with Mandate M/238 from the European Commission has been accepted by ISO/TC 28. Ten test methods are parallel progressed towards prEN ISO/DIS stage, to be followed by parallel prEN-ISO/FDIS (2 months voting period) and EN ISO publications. One test method will be taken over as European standard through UAP-procedure. Acknowledgement is given to the ISO secretariat for its involvement in processing these standards.
Further also two ISO-standards developed by ISO/TC 28/SC 4 have been implemented via the UAP procedure in October 2001 and March 2002 respectively (ISO 6743-4 and ISO 12922).
One standard, i.e. guidelines on selection for the protection of safety, health and the environment, will be developed as EN standard and is currently out for CEN Enquiry (prEN 14489) until 2002-12-01.

Although not a part of the Mandate, CEN/TC 19 agreed that the development of ISO 4263-3 Tost test for anhydrous synthetic hydraulic fluids should be put on the ISO/TC 28 Work Program, with Mr. Reichel as project leader. Now the document has reached CD stage, it is agreed that ISO 4263-3 will be added to the CEN/TC 19 Work Program by parallel processing within ISO/TC 28 via the Vienna Agreement.

3) Mandate M/245 "FAME specifications and test methods" (WG 24/TF, WG 25, WG 26)

The original idea of delivering two specifications for either use as 100% automotive diesel fuel and for an extender to automotive diesel fuel has been debated for a long period within the Biodiesel Task Force. The OEMs did not support the idea of two grades of biodiesel being used for the same engine and envisaged major problems for customers in identifying the two grades. Therefore an agreement with the EC has been found, that only one specification for biodiesel as a 100% fuel and as a blending component up to 5% in automotive diesel would be drafted. This specification and the one for FAME to be used as heating oil (prEN 14214, respectively prEN 14213) have been balloted at the draft stage and are now after editing at the formal voting stage. Publication is expected in the first half of 2003.

Part of the work has been dealt with by CEN/TC 307/WG 1. They have produced several EN standards specific for characterisation of FAME. In close cooperation with ISO/TC 28 project leaders, CEN/TC 19/WG 26 has done an extensive investigation identifying the applicability of these 13 EN standards and several ISO test methods towards FAME as a fuel and FAME in diesel. Four test methods appeared to have different precision data for FAME than for diesel. WG 26 has provided their data to the relevant ISO project leaders so that FAME can be included in the scope and FAME precision data can be included. These ISO methods are related to:

- viscosity ISO 3104
- density, ISO 3675 and ISO 12185
- sulfur, ISO/DIS 20846, ISO/DIS 20884 and ISO/DIS 20847
- carbon residue, ISO 10370
- ignition quality, ISO 5165
- water content, ISO 12937
- corrosiveness to copper, ISO 2160
- flash point, ISO/DIS 3679
- sulfated ash, ISO 3987

All but the latter two have been take over as European standards. A short CEN report on the applicability of test method standards to FAME has been produced and an extensive report (including test data) from WG 26 is expected later this year. Furthermore, an IR determination method for FAME in fuel (EN 14078) has been drafted. It is expected to be finalised in 2003.

4) Mandate M/287 "Fuel quality monitoring system" (WG 30)

The mandate strongly relates to the European Fuels Directive 98/70/EC. The development of the standards by CEN/TC 19/WG 30 has given some discussion. Now the monitoring system is incorporated in the amendment to the Fuels Directive and therefore obligatory for all the EU member states. Two standards have been developed up to the final vote stage:

- EN 14274 Requirements for a fuels quality monitoring system,
- EN 14275 Sampling from service station pumps and other dispensers,

and the final publication is expected to be June 2003.

5) Other activities

WG 9

The WG has worked on two items for replacement methods to the FIA method for the determination of aromatics and olefins in gasolines:

- Determination of hydrocarbon types and oxygenates by multidimensional gas chromatography,
- Determination of total aromatics by two dimensional gas chromatography.

Furthermore, WG 9 has done a short study on EN 238:1996 (Determination of the benzene content by infrared spectrometry) to update the precision data for benzene levels around 1% and below. An amendment via the 6 months UAP procedure has started. Upon publication of this amendment, EN 238 will be revised taking into account further improvements of precision data.

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WG 15

CEN/TC 19 agreed to start revision of the vapour pressure documents EN 13016-1 (ASVP) and EN 13016-2 (AVP).

WG 17

In addition to the FAME test methods delivered by CEN/TC 307, WG 17 has developed prEN 14538 "Determination of Ca and Mg content by optical emission spectral analysis with inductively coupled plasma (ICP OES)". This method is also incorporated in the FAME specification. Furthermore, the WG is still working on a new standard for the determination of nickel and vanadium content.

WG 18

The working group is working on the revision of EN 12916 (Determination of aromatic hydrocarbon types in middle distillates by HPLC with refractive index detection) and a working draft is expected at the end of this year. The WG will thereafter start work on a method for the determination of PAH content with UV-VIS in order to improve analytical issues like FAME interference.

WG 22

The WG has worked on part 3 to 12766 (determination of PCB's) and via a separate Task Force on a new standard for the determination of organic halogen content by oxidative microcoulometry (EN 14077).

The latter is now at the formal vote stage.

WG 23
Based on a study by WG 29 it has been decided that UVF (ASTM D-6667) is the method of dispute for sulfur determination in EN 589. Microcoulometry and Wickbold could be used as well. Besides finalising the revised LPG specification WG 23 started a discussion with ASTM on the MON/RON data for LPG. Different calculation figures are set in the ASTM D 4259 and EN 589. This discussion is still pending. Last item is WG 23s interest in an sulfur-free odorant for LPG as 10ppm sulfur will be the goal for the future for LPG too.

WG 29
The Working Group has worked on three LPG residue test methods. Aim is to find an alternative for the environment unfriendly method ISO 13757. Two gravimetric and one GC method have been studied in which extensive problems with handling of the sample and reproducibility were found. In short time a RR with 14 labs and two methods will commence.

WG 31
At the TC plenary in Milan, 2001, a new working group was established on total contamination. The WG will recommend an improved method of total contamination at low levels, as replacement for EN 12662:1998 and to consider the need for further definition of contamination. WG 31 shall also add FAME samples into its round robin.

Fuel cells
CEN/TC 19 has accepted responsibility for the development of future specifications for fuels for fuel cells, and has agreed to form a small expert group to maintain a watching brief on developments in the field of fuel cell technologies.

6) Decisions taken within CEN/TC 19 concerning ISO standards

At the last ISO/TC 28 meeting urgent revision of ISO 3170, ISO 3837, ISO 3838 and ISO 4259 was requested by CEN/TC 19. This request is still valid. But the need for the first and the last standard is obvious as they are an essential part of the EN fuel specifications. Furthermore, CEN/TC 19, by resolution 17, made a recommendation to ISO/TC 28 to start an early revision of ISO 12156-1 (diesel lubricity), and to incorporate revisions proposed by CEC SF-006.

As a result of discussions within CEN/TC 19/WG 21, ISO/TC 28 is requested by a resolution taken at the last plenary meeting to provide the revised text of ISO/CD 5163 and ISO/CD 5164 to be issued for ISO/DIS ballot procedure in order to allow the octane task force (OTF) to proceed with a European round robin on MON and RON. The OTF recently studied the effect of the use of new (ISO/DIS) methods in relation to the European fuel specification. Conclusion was that a distraction factor of 0,2 should be used when determining compliance of the fuel after testing with prEN ISO/DIS 5163 or prEN ISO/DIS 5164. This correction is incorporated in the new petrol specification.

The progress of all other CEN/TC 19 standards on the parallel programme, with ISO/TC 28 under “Vienna Agreement”, for instance flash point methods being developed by the Joint Working Group ISO/TC 28/ & TC 35 and CEN counterparts CEN/TC 19 & TC 139, can be found at the attached CEN/TC 19 Work Programme.

CEN/TC 19 Work Program

Standard number	Part	Title	Phase
Mandate requests related to automotive fuel specifications			
228		Automotive fuels - Unleaded petrol - Requirements and test methods	prEN CE due
589		Automotive fuels - LPG - Requirements and test methods	prEN CE due
590		Automotive fuels - Diesel - Requirements and test methods	prEN CE due
1601		Liquid petroleum products - Unleaded petrol - Determination of organic oxygenate compounds and total oxygen content by gas chro	EN
14078		Petroleum products - Determination of Fatty Acid Methyl Esters (FAME) - IR method	prEN CE issued
14213		Heating oils - Fatty acid methyl esters (FAME) - Requirements and test methods	prEN FV due
14214		Automotive fuels - Fatty acid methyl esters (FAME) for diesel engines - Requirements and test methods	prEN FV due
14274		Automotive fuels - Petrol and diesel - Requirements for a fuel quality monitoring system	prEN CE issued
14275		Automotive fuels - Petrol and diesel - Sampling from service station pumps and other dispensers	prEN CE issued
Items only in CEN, referred to in the automotive fuel specifications			
116		Diesel and domestic heating fuels - Determination of cold filter plugging point	WD due
237		Liquid petroleum products - Petrol - Determination of low lead concentrations by atomic absorption spectrometry	prEN CE due
238		Liquid petroleum products - Petrol - Determination of the benzene content by infrared spectrometry	UAP due
12177		Liquid petroleum products - Unleaded petrol - Determination of benzene content by gas chromatography	EN
12662		Liquid petroleum products - Determination of contamination in middle distillates	EN
12787		Status report on diesel fuel lubricity	Withdrawn
13016	-1	Liquid petroleum products - Vapour pressure - Part 1: Determination of air saturated vapour pressure (ASVP)	prEN CE due
14517		Liquid petroleum products - Determination of hydrocarbon types and oxygenates in petrol - Multidimensional gas chromatography	prEN CE issued
Items only in CEN, related to the automotive fuel specifications			
		Applicability of test method standards for Fatty Acid Methyl Esters (FAME) - Information and results on round robin tests	CR due
241		Liquid petroleum products - Determination of sodium content - Atomic absorption spectrometric method	EN
12634		Petroleum products and lubricants - Determination of acid number - Potentiometric titration method	EN
12916		Petroleum products - Determination of aromatic hydrocarbon types in middle distillates - High performance liquid chromatography	prEN CE due
13016	-2	Liquid petroleum products - Vapour pressure - Part 2: Determination of absolute vapour pressure (AVP) between 40 °C and 100 °C	prEN CE due
13132		Liquid petroleum products - Unleaded petrol - Determination of organic oxygenate compounds and total oxygen content by gas chro	EN
13837		Automotive diesel fuels - Determination of filtrability - SFPP method	CR
13838		Automotive diesel fuels - Determination of filtrability - Agelfi method	CR
14538		Fat and derivatives – Fatty acid methyl ester (FAME) – Determination of Ca and Mg content by optical emission spectral analysis	prEN CE issued
Items only in CEN, not related to mandate work			
…		Liquid petroleum products - Determination of benzene, toluene and methyltert-butylether in petrol - Method by capillary gas chromatography	prEN CE due
….		Liquid Petroleum products - Petrol - Determination of total aromatics by two dimensional gas chromatography	prEN CE due
….		Petroleum products - Determination of nickel and vanadium content - Sample preparation by microwave incineration technique	WD due
12		Petroleum products - Determination of Reid vapour pressure - Wet method	Withdrawn
12766	-1	Petroleum products and used oils - Determination of PCBs and related products - Part 1: Separation and determination of selecte	EN
12766	-2	Petroleum products and used oils - Determination of PCBs and related products - Part 2: Calculation of polychlorinated biphenyl	EN
12766	-3	Petroleum products and used oils - Determination of PCBs and related products - Part 3: Determination and calculation of PCB re	prEN CE issued
13131		Liquid petroleum products - Determination of nickel and vanadium content - Atomic absorption spectrometric method	EN
13723		Petroleum products - Determination of low lead contents in gasolines - Wavelength-dispersive X-ray fluorescence spectrometry (X	publication due
14077		Petroleum products - Determination of organic halogen content - Oxidative microcoulometric method	prEN CE issued
14331		Liquid petroleum products - Separation and characterization of fatty acid methyl esters (FAME) by liquid chromarography/gas chr	prEN CE issued

Items in cooperation with ISO, referred to in the automotive fuel specifications

2160		Petroleum products - Corrosiveness to copper - Copper strip test	EN ISO
2719		Determination of flash point - Pensky-Martens closed cup method	prEN ISO/FDIS issued
3015		Petroleum products - Determination of cloud point	EN ISO
3104		Petroleum products - Transparent and opaque liquids - Determination of kinematic viscosity and calculation of dynamic viscosity	EN ISO
3170		Petroleum liquids - Manual sampling	prEN ISO/DIS issued
3171		Petroleum liquids - Automatic pipeline sampling	EN ISO
3405		Petroleum products - Determination of distillation characteristics at atmospheric pressure	EN ISO
3675		Crude petroleum and liquid petroleum products - Laboratory determination of density of density - Hydrometer method	EN ISO
3993		Liquified petroleum gas and light hydrocarbons - Determination of density or relative density - Pressure hydrometer method	EN ISO
4256		Liquefied petroleum gases - Determination of gauge vapour pressure - LPG method	EN ISO
4257		Liquefied petroleum gases - Method of sampling (ISO/DIS 4257:1997)	EN ISO
4259		Petroleum products - Determination and application of precision data in relation to methods of test	EN ISO
4260		Petroleum products and hydrocarbons - Determination of sulfur content - Wickbold combustion method	EN ISO
4264		Petroleum products - Calculation of cetane index of middle-distillate fuels by the four-variable equation	EN ISO
5163		Petroleum products - Determination of knock characteristics of motor and aviation fuels - Motor method	prEN ISO/DIS issued
5164		Petroleum products - Determination of knock characteristics of motor fuels - Research method	prEN ISO/DIS issued
5165		Petroleum products - Determination of the ignition quality of diesel fuels - Cetane method	EN ISO
6245		Petroleum products - Determination of ash	UAP issued
6246		Petroleum products - Gum content of light and middle distillate fuels - Jet evaporation method	EN ISO
6251		Liquefied petroleum gases - Corrosiveness to copper - Copper strip test	EN ISO
7536		Petroleum products - Determination of oxidation stability of gasoline - Induction period method	EN ISO
7941		Commercial propane and butane - Analysis by gas chromatography	EN ISO
8819		Liquefied petroleum gases - Detection of hydrogen sulfide - Lead acetate method	EN ISO
8973		Liquefied petroleum gases - Calculation method for density and vapour pressure	EN ISO
10370		Petroleum products - Determination of carbon residue - Micro method	EN ISO
12156	-1	Diesel fuel - Assessment of lubricity using the high-frequency reciprocating rig (HFRR) - Part 1: Test method (ISO 12156-1:1997	EN ISO
12185		Crude petroleum and petroleum products - Determinatin of density - Oscillation U-tube method	EN ISO
12205		Petroleum products - Determination of the oxidation stability of middle-distillate fuels	EN ISO
12937		Petroleum products - Determination of water - Coulometric Karl Fisher titration method	EN ISO
13757		Liquefied petroleum gases - Determination of oily residues - High-temperature method	EN ISO
13758		Liquefied petroleum gases - Assessment of the dryness of propane - Valve freeze method	EN ISO
13759		Petroleum products - Determination of alkyl nitrate in diesel fuels - Spectrometric method	EN ISO
20846		Petroleum products - Determination of total sulfur content of liquid petroleum products - Ultraviolet fluorescence method	prEN ISO/DIS issued
20847		Petroleum products - Determination of the sulfur content of automotive fuels - Energy-dispersive X-ray fluorescence method	prEN ISO/DIS issued
20884		Petroleum products - Determination of low sulfur content of automotive fuels by wavelength-dispersive X-ray fluorescence spectr	prEN ISO/DIS issued

Items in cooperation with ISO, related to the automotive fuel specifications

2592		Petroleum products - Determination of flash and firepoints - Cleveland open cup method (ISO 2592:2000)	EN ISO
3696		Water for analytical laboratory use - Specification and methods of test	EN ISO
3830		Petroleum products - Gasoline - Determination of lead content of gasoline - Lodine monochloride method	EN ISO
13736		Petroleum products and other liquids - Determination of flash point - Abel closed cup method	EN ISO

Items in cooperation with ISO, not related to automotive fuel specifications

		Fire-resistant hydraulic fluids - Classification and specification - Guidelines on selection for the protection of safety, heal	prEN CE due
1516		Determination of flash/no flash - Closed cup equilibrium method	EN ISO
1523		Determination of flash point - Closed cup equilibrium method	EN ISO

3679		Determination of flash point - Rapid equilibrium method	prEN ISO/DIS due
3680		Flash/no flash test - Rapid equilibrium method	prEN ISO/DIS due
3735		Crude petroleum and fuel oils - Determination of sediment - Extraction method	EN ISO
3837		Liquid petroleum products - Determination of hydrocarbon types - Fluorescent indicator adsorption method	prEN ISO/DIS due
3838		Crude petroleum and liquid or solid petroleum products - Determination of density or relative density - Capillary-stoppered pyk	prEN ISO/DIS issued
4263	-1	Petroleum products - Determination of the ageing behaviour of inhibited oils and fluids - TOST test - Part 1: Procedure for min	ISO/CD due
4263	-2	Petroleum products - Determination of the ageing behaviour of inhibited oils and fluids - TOST test - Part 2: Procedure for cat	prEN ISO/FDIS due
4267	-2	Petroleum and liquid petroleum products - Calculation of oil quantities - Part 2: Dynamic measurement (revision of ISO 4267-2:1	EN ISO
4404	-2	Petroleum and related products - Determination of the corrosion resistance of non-aqueous hydraulic fluids (within class HFD)	prEN ISO/DIS issued
6551		Petroleum liquids and gases - Fidelity and security of dynamic measurement - Cabled transmission of electric and/or electronic	EN ISO
6743	-4	Lubricants, industrial oils and related products (class L) - Classification - Part 4: Family H (Hydraulic systems)	EN ISO
7278	-1	Liquid hydrocarbons - Dynamic measurement - Proving systems for volumetric meters - Part 1: General	EN ISO
7278	-2	Liquid hydrocarbons - Dynamic measurement - Proving systems for volumetric meters - Part 2: Pipe provers	EN ISO
8222		Petroleum measurement systems - Calibration - Temperature corrections for use with volumetric reference measuring systems (ISO/	prEN ISO/DIS issued
8311		Refrigerated light hydrocarbon fluids - Calibration of membrane tanks and independent prismatic tanks in ships - Physical measu	EN ISO
8754		Petroleum products - Determination of sulfur content - Energy-dispersive X-ray fluorescense spectrometry	prEN ISO/FDIS due
9029		Crude petroleum - Determination of water - Distillation method	EN ISO
12922		Lubricants, industrial oils and related products (class L) - Family H (Hydraulic systems) - Specifications for categories HFAE,	publication due
14596		Petroleum products - Determination of sulfur content - Wavelength dispersive X-ray fluorescense method	EN ISO
14597		Petroleum products - Determination of vanadium and nickel in liquid fuels - Wavelength dispersive X-ray fluorescense method	EN ISO
14935		Petroleum and related products - Determination of wick flame persistance of fire resistant fluids	EN ISO
15029	3	Petroleum products - Determination of spray ignition characteristics of fire-resistant fluids - Part 3: Spray test - Large scal	prEN ISO/DIS due
15029	-1	Petroleum and related products - Determination of spray ignition characteristics of fire-resistant fluids - Part 1: Spray flame	EN ISO
15029	-2	Petroleum and related products - Determination of spray ignition characteristics of fire-resistant fluids - Part 2: Spray test	prEN ISO/DIS due
16591		Petroleum products - Determination of the sulfur content - Oxidative microcoulometric method	prEN ISO/DIS issued
20623		Petroleum and related products - Determination of the extreme-ressure and anti-wear properties of fluids - Four ball method (Eu	prEN ISO/DIS issued
20763		Petroleum and related products - Determination of anti-wear properties of hydraulic fluids - Vane pump method	prEN ISO/DIS due
20764		Petroleum and related products - Preparation of a test portion of high-boiling liquids for the determination of water content -	prEN ISO/DIS issued
20783	-1	Petroleum and related products - Determination of emulsion stability of fire-resistant fluids - Part 1: Fluids in category HFAE	prEN ISO/DIS issued
20783	-2	Petroleum products and related products - Determination of emulsion stability of fire-resistant hydraulic fluids - Part 2: Flui	prEN ISO/DIS issued
20823		Petroleum and related products - Determination of the flammability characteristics of fluids in contact with hot surfaces - Man	prEN ISO/DIS issued
20843		Petroleum and related products - Determination of pH of fire-resistant fluids within classes HFA and HFC	prEN ISO/DIS issued
20844		Petroleum and related products - Determination of the shear stability of polymer-containing oils using a diesel injection nozzl	prEN ISO/DIS issued

Study items

13839		Petroleum products - Determination of aromaticity - 13C nuclear magnetic resonance (NMR) spectrometric method	CR
13840		Petroleum products - Determination of polycyclic aromatic hydrocarbons - Ultraviolet (UV) spectrometric method	CR
15029	-3	Petroleum and related products - Determination of spray ignition characteristics of fire-resistant fluids - Part 3: Spray test	Study Item