Title of subcommittee (the title shall be unambiguous and as concise as possible)

Proposed ISO/TC 28 Subcommittee on Liquid Biofuels

Scope (the scope shall define precisely the limits of the proposed field of activity of the subcommittee within the defined scope of the parent technical committee and shall begin with "Standardization of ..." or "Standardization in the field of ...")

Standardization of terminology, classification, and specifications for liquid biofuels, and analysis and testing for pure liquid biofuels.

Purpose and justification (the justification shall explain why it is considered necessary to establish a subsidiary body within the parent technical committee, taking into account the additional resources that will be required to operate the subcommittee secretariat)

Please see Annex A attached

Programme of work (list of principal questions which the parent technical committee wishes to be included within the limits given in the proposed subcommittee scope, indicating what aspects of the subject should be dealt with, e.g. terminology, test methods, dimensions and tolerances, performance requirements, technical specifications, etc.) (attach a separate page as annex, if necessary).

Please see Annex B attached

Survey of similar work undertaken in other bodies (relevant documents to be considered: national standards or other normative documents)

Please see Annex C attached

Liaison organizations (list of organizations or external or internal bodies with which cooperation and liaison should be established)

ISO/TC 22 and its appropriate SCs, ISO/TC 34/SC 11, CEN/TC 19, CEN/TC 307, International Energy Agency, World Energy Council, ASTM Committee D02

Secretariat

ABNT and ANSI offer to cooperatively provide the leadership for this proposed ISO/TC 28 subcommittee. Details of the terms of this leadership arrangement will be forthcoming for the information of ISO/TC 28 P members.

ANNEX A
ABNT/ANSI PROPOSAL FOR A NEW ISO/TC 28 LIQUID BIOFUELS SUBCOMMITTEE
PURPOSE AND JUSTIFICATION

With the current debates on the effects of climate change and the increasing demand for a steadily decreasing supply of fossil fuels, many parties have been compelled to find alternative fuels while accomplishing the goal of reducing the emission of carbon dioxide. Reports such as the recent one from the Intergovernmental Panel on Climate Change, about climate change and the increase in greenhouse gas emissions, also show the urgent need to decrease the amount of carbon dioxide (among other actions), to which use of fossil fuels is the biggest contributor.

This fact, in combination with the international economic aspect of increasing oil prices, has triggered an enormous search for alternate forms of energy, more specifically, alternate fuels. Amongst the envisaged possibilities, one that has demonstrated great potential is biofuel technology.

Generally speaking, biofuel is fuel made from biological materials, i.e. a renewable fuel (e.g. ethanol, biodiesel, biogas, and methane) that is derived from biological matter.

Ethanol is one type of liquid biofuel, which is produced from cultures such as sugarcane, corn, beetroot, wheat, and cellulose among other possibilities, and used as an automotive engine fuel. The blending of ethyl alcohol (ethanol) into gasoline has been one of the most studied solutions to the above-mentioned goal, following the growing interest in research for alternate fuels, and markets in different regions of the world have already indicated their interest on this approach. It is important to mention that several countries have already approved projects to study the blending of ethanol into gasoline. The European Union, in its Directives, established an increasing mixture of 2% in 2005, to 5,75% in 2010, on a voluntary basis, which will result in a production of 13 billion litres per year. Similar situations can also be seen in the United States, which is quickly increasing its ethanol production (based primarily on corn), and in Japan, whose government has authorized a mixture of 3% of ethyl alcohol to gasoline – also on a voluntary basis. China has also planned to increase its production. In Latin America we can reference Brazil, which has been developing great knowledge in this area, with experiences that go back to the 1970s. The Brazilian experience in this field has credited the country, along with the low production costs and its abundant natural resources and plantation areas, as one the most important producers and suppliers of ethanol to the world market.

Another type of liquid biofuel is biodiesel, which is obtained from the chemical reaction between an oil or fat (of animal or vegetable origin) and alcohol (in the presence of catalyst). This fuel can substitute, totally or partially (in any desired proportion), the use of petroleum-based diesel fuel in compression ignition (diesel) engines. Currently, this alternative has been tested all around the world. Countries like Argentina, USA, Brazil, France, Germany and Italy, are already producing biodiesel with a commercial focus. In Europe this initiative was started in the 1990s. Currently the European Union produces about 1,35 millions of tons of biodiesel, which corresponds to a significant part of the world's production.

With all these initiatives, and the growing market demand, trade between markets will increase the exportation of these products. This increase will also reflect on the demand for harmonization of specifications and test methods that could be applied by all the interested parties in the supply chain.

Currently, countries use different methods, units and calculations for biofuels, which may have some basis in governmental regulations, which makes the task of a producer and of a trader much more difficult when it comes to ensuring the quality of his product and the commercialization of it. An example of this difficulty is the fact that some test methods were originally produced for fossil fuels (gasoline, aviation fuel, etc.) and not for liquid biofuels. Lack of recognized global standards may result in barriers to the use of biofuels as a worldwide option for an alternative source of energy and for the reduction of the emission of carbon dioxide.

Within the last six months, a significant number of conferences as well as private sector and intergovernmental initiatives have arisen on the subject of liquid biofuels, highlighting the importance that key players are now placing on this subject. In addition, in late 2006, ISO/TC 28 (Petroleum products and lubricants) agreed to a scope expansion to include addressing the subject of liquid biofuels. This scope expansion was also subsequently approved by the ISO Technical Management Board.

Recently, CEN/TC 19 (Gaseous and liquid fuels, lubricants and related products of petroleum, synthetic and biological origin) agreed:

- that any ISO activity on biofuels should not duplicate or conflict with, and should be properly coordinated with and take advantage of, the results of tripartite efforts among Europe, the USA and Brazil working by end of 2007 with the goal of the “development of a set of compatible specifications for pure biofuels (both bioethanol and biodiesel) that will facilitate international trade and increase use of alternative fuels, taking into account existing standards"; and
- that when biofuels work is progressed in ISO, it should be assigned to ISO/TC 28.

Noting the dynamics cited above and these CEN/TC 19 recommendations, as well as the fact that ISO/TC 28 has a long and successful record of cooperation with CEN/TC 19 in the implementation of the ISO/CEN Vienna Agreement, ABNT (Brazil) and ANSI (USA) are proposing this ISO/TC 28 subcommittee on liquid biofuels. We believe that ISO/TC 28 is very well positioned and experienced with standards, test methods and specifications related to liquid fuels, and that it either currently has or will establish the appropriate liaisons with relevant international organizations to accomplish liquid biofuels standardization.

At its June 2007 meeting, the ISO Technical Management Board noted the high level of political and stakeholder interest in the subject of liquid biofuels and the various national and regional activities on biofuel standardization. Recognizing the expressed preference for ISO Standards in this area, the ISO/TMB accepted the offer of ANSI and ABNT to develop this proposal to create a subcommittee of ISO/TC 28 dedicated to biofuels, further recommending the establishment of relevant working groups on biodiesel and ethanol. The ISO/TMB also ratified the establishment of this new subcommittee pending a successful 30-day ballot of ISO/TC 28 P members. The ISO/TMB also requested that the work be carried out as expeditiously and efficiently as possible to reflect the global importance and focus on this subject.

ANNEX B
ABNT/ANSI PROPOSAL FOR A NEW ISO/TC 28 LIQUID BIOFUELS SUBCOMMITTEE
PROGRAMME OF WORK

It is proposed that the new ISO/TC 28 subcommittee be structured initially with two working groups, one on ethanol and one on biodiesel. The new ISO/TC 28 subcommittee will determine the subcommittee's programme of work. In their consideration of a possible programme of work, it is important to first recognize some general commitments and principles of ISO as an organization:

In the Foreword of the ISO/IEC Directives, Part 1, a principle of cost effectiveness of the ISO system is stressed where it states: "These procedures take account of the total cost of the operation. The concept of 'total cost' includes direct expenditure by national bodies, expenditure by the offices in Geneva (funded mainly by the dues of national bodies), travel costs and the value of the time spent by experts in working groups and committees, at both national and international level." As such, any new ISO work in the field of liquid biofuels must consider the additional burden it may place on key experts. Without the participation of these key experts, whose time is limited and who may be already engaged in other biofuels standards activities, ISO will not be able to produce the best possible liquid biofuels standards. The most efficient and cost effective means possible for all must be considered for ISO to enter this field.

The World Trade Organization (WTO) Committee on Technical Barriers to Trade has adopted a set of principles to which an organization engaged in the development of international standards should comply. ISO has committed to follow these principles, one of which as stated in paragraph E 12 of G/TBT/ 1/REV. 8 is "In order to avoid the development of conflicting international standards, it is important that international standardizing bodies avoid duplication of, or overlap with, the work of other international standardizing bodies. In this respect, cooperation and coordination with other relevant international bodies is essential."

Further to this WTO/TBT principle, in the ISO Strategic Plan for 2005-2010, ISO's Key Strategic Objective #4 is "Being open to partnerships for the efficient development of International Standards". This objective speaks to ISO's commitment to find creative means to work cooperatively with existing standards development efforts in other organizations. As such, it will be important that an ISO/TC 28 subcommittee on liquid biofuels considers and respects important existing and developing work in entities such as CEN/TC 19 and ASTM International, as well as other international, regional and national organizations. Coupled with the concern regarding cost effectiveness above, it will be important that ISO find unique and new projects in this field that do not duplicate and/or conflict with existing liquid biofuels standards efforts.

Work Programme Recommendations:

- The subcommittee should, as its first order of business, form an advisory group to review existing liquid biofuels standards efforts, as well as the results of various current biofuels coordination and harmonization efforts, in order to identify and study opportunities for the work programme of this subcommittee.
- The advisory group should coordinate with the proposed JWG between ISO/TC 28 and ISO/TC 34/SC 11 to ensure there is no duplication of work between this JWG and the ISO/TC 28 subcommittee.
- Measurement and methods of sampling for liquid biofuels should be incorporated into the work of ISO/TC 28/SC 2.
- In relation to analysis and testing, the new subcommittee will respect and not conflict with nor duplicate the work of the parent committee.

ANNEX C
ABNT/ANSI PROPOSAL FOR A NEW ISO/TC 28 LIQUID BIOFUELS SUBCOMMITTEE
SURVEY OF SIMILAR WORK

NOTE
This listing is not considered comprehensive, and the proposers welcome suggestions for additions to this listing.

ABNT

Ethanol

- ABNT NBR 5992 – Determination of the density and alcoholic concentration of ethyl alcohol and of its water mixtures – Glass densimeter method;
- ABNT NBR 8644 – Fuel ethylic alcohol – Determination of residues by evaporation;
- ABNT NBR 9866 – Ethyl alcohol – Determination of total acidity;
- ABNT NBR10260 – Ethyl alcohol – Determination of acetyl, ethylene oxide, acetic acid, acetone, methanol, superior alcohols and benzene by gas chromatography;
- ABNT NBR10266 – Ethyl alcohol – Determination of bromine number;
- ABNT NBR10422 – Ethyl alcohol – Determination of sodium content – Flame photometry method;
- ABNT NBR10425 – Alcohols;
- ABNT NBR10429 – Superior Alcohols – Determination of total alcohol content;
- ABNT NBR 10894 – Ethyl alcohol – Determination of chloride and sulphate – Ion chromatography method;
- ABNT NBR 11331 – Ethyl alcohol – Determination of Iron and Cooper content – Atomic Absorption Spectrophotomic Method;
- ABNT NBR 13993 – Fuel ethylic alcohol – Determination of gasoline content;

Biodiesel

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- ABNT NBR 15343 – Biodiesel – Determination of free glycerol in castor oil biodiesels by gas chromatography;
- ABNT NBR 15341 – Biodiesel – Determination of free glycerol in castor oil biodiesels by gas chromatography;
- ABNT NBR 15342 – Biodiesel – Determination of monoglycerides, diglycerides and total esters contents of castor oil biodiesel by gas chromatography;
- ABNT NBR 15343 – Biodiesel – Determination of methanol or/and ethanol concentrations in fatty acid esters (biodiesels) by gas chromatography;
- ABNT NBR 15344 – Biodiesel – Determination of total glycerin and triglycerides contents in castor oil biodiesels;
- ABNT NBR14248 – Petroleum products – Determination of acid and base number – Indicator method;
- ABNT NBR14525 – Fuels – Determination of gum by evaporation;
- ABNT NBR 14543 – Petroleum products – Determination of acid number by semi-micro color titration;
- ABNT NBR 15341 Biodiesel – Determination of free glycerin in castor oil biodiesel by gas chromatography.

American Society of Agricultural and Biological Engineers

Biodiesel

- ASAE EP552 :2001 Reporting of Fuel Properties When Testing Diesel Engines with Alternative Fuels Derived from Biological Material.

ASTM International

Ethanol

- ASTM D6423-99(2004) Standard Test Method for Determination of pHe of Ethanol, Denatured Fuel Ethanol, and Fuel Ethanol (Ed75-Ed85)
- ASTM D4806-06c Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel
- ASTM D5798-07 Standard Specification for Fuel Ethanol (Ed75-Ed85) for Automotive Spark-Ignition Engines
- ASTM D5501-04 Standard Test Method for Determination of Ethanol Content of Denatured Fuel Ethanol by Gas Chromatography
- ASTM D7328-07e1 Standard Test Method for Determination of Total and Potential Inorganic Sulfate and Total Inorganic Chloride in Fuel Ethanol by Ion Chromatography Using Aqueous Sample Injection
- ASTM D7318-07 Standard Test Method for Total Inorganic Sulfate in Ethanol by Potentiometric Titration
- ASTM E869-93(2006) Standard Test Method for Performance Evaluation of Fuel Ethanol Manufacturing Facilities
- ASTM D7319-07 Standard Test Method for Determination of Total and Potential Sulfate and Inorganic Chloride in Fuel Ethanol by Direct Injection Suppressed Ion Chromatography
- ASTM D5845-01(2006) Standard Test Method for Determination of MTBE, ETBE, TAME, DIPE, Methanol, Ethanol and tert-Butanol in Gasoline by Infrared Spectroscopy
- ASTM D4814-07 Standard Specification for Automotive Spark-Ignition Engine Fuel
- ASTM E1117-97(2006) Standard Practice for Design of Fuel-Alcohol Manufacturing Facilities
- ASTM D6730-01(2006)e1 Standard Test Method for Determination of Individual Components in Spark Ignition Engine Fuels by 100–Metre Capillary (with Precolumn) High-Resolution Gas Chromatography
- ASTM D6729-04 Standard Test Method for Determination of Individual Components in Spark Ignition Engine Fuels by 100 Meter Capillary High Resolution Gas Chromatography
- ASTM D4815-04 Standard Test Method for Determination of MTBE, ETBE, TAME, DIPE, tertiary-Amyl Alcohol and C_1 to C_4 Alcohols in Gasoline by Gas Chromatography
- ASTM D1319-03e1 Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption
- ASTM D7096-05 Standard Test Method for Determination of the Boiling Range Distribution of Gasoline by Wide-Bore Capillary Gas Chromatography
- ASTM D6550-05 Standard Test Method for Determination of Olefin Content of Gasolines by Supercritical-Fluid Chromatography
- ASTM D6296-98(2003)e1 Standard Test Method for Total Olefins in Spark-Ignition Engine Fuels by Multi-dimensional Gas Chromatography
- ASTM D5986-96(2006) Standard Test Method for Determination of Oxygenates, Benzene, Toluene, C8-C 12 Aromatics and Total Aromatics in Finished Gasoline by Gas Chromatography/Fourier Transform Infrared Spectroscopy
- ASTM D5622-95(2005) Standard Test Methods for Determination of Total Oxygen in Gasoline and Methanol Fuels by Reductive Pyrolysis
- ASTM D5599-00(2005) Standard Test Method for Determination of Oxygenates in Gasoline by Gas Chromatography and Oxygen Selective Flame Ionization Detection
- ASTM D5580-02 Standard Test Method for Determination of Benzene, Toluene, Ethylbenzene, p/m-Xylene, o-Xylene, C_9 and Heavier Aromatics, and Total Aromatics in Finished Gasoline by Gas Chromatography
- ASTM D5453-06 Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence
- ASTM D3831-01(2006) Standard Test Method for Manganese in Gasoline By Atomic Absorption Spectroscopy
- ASTM D3606-06e1 Standard Test Method for Determination of Benzene and Toluene in Finished Motor and Aviation Gasoline by Gas Chromatography
- ASTM E1344-90(2006) Standard Guide for Evaluation of Fuel Ethanol Manufacturing Facilities
- ASTM E1117-97(2006) Standard Practice for Design of Fuel-Alcohol Manufacturing Facilities

Biodiesel

- ASTM D6890-07a Standard Test Method for Determination of Ignition Delay and Derived Cetane Number (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber
- ASTM D5773-05 Standard Test Method for Cloud Point of Petroleum Products (Constant Cooling Rate Method)
- ASTM D5772-05 Standard Test Method for Cloud Point of Petroleum Products (Linear Cooling Rate Method)

- ASTM D5771-05 Standard Test Method for Cloud Point of Petroleum Products (Optical Detection Stepped Cooling Method)
- ASTM D5453-06 Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence
- ASTM D3120-06e1 Standard Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry
- ASTM D2500-05 Standard Test Method for Cloud Point of Petroleum Products
- ASTM D6469 Standard Guide for Microbial Contamination in Fuels and Fuel Systems

CEN/TC 19

Ethanol

- prEN 15376 Automotive fuels - Ethanol as a blending component for petrol - Requirements and test methods
- prEN 15484 Ethanol as a blending component for petrol - Determination of inorganic chloride - Potentiometric method
- prEN 15485 Ethanol as a blending component for petrol - Determination of sulfur content - Wavelength dispersive X-ray fluorescence spectrometric method
- prEN 15486 Ethanol as a blending component for petrol - Determination of sulfur content - Ultraviolet fluorescence method
- prEN 15487 Ethanol as a blending component for petrol - Determination of phosphorus content - Ammonium molybdate spectrometric method
- prEN 15488 Ethanol as a blending component for petrol - Determination of copper content - Graphite furnace atomic absorption spectrometric method
- prEN 15489 Ethanol as a blending component for petrol - Determination of water content - Karl Fischer coulometric titration method
- prEN 15490 Ethanol as a blending component for petrol - Determination of pHe
- prEN 15491 Ethanol as a blending component for petrol - Determination of total acidity - Colour indicator titration method
- Ethanol as a blending component for petrol - Determination of Elements Content by ICP-OES - Part 2: Direct method
- prEN 15492 Ethanol as a blending component for petrol - Determination of inorganic chloride - Ion chromatographic method
- Ethanol as a blending component for petrol - Determination of Elements Content by ICP-OES - Part 1 Determination after dry residue
- Ethanol as a blending component for gasoline - Determination of appearance - Visual method
- prEN 15691 Ethanol as a blending component for petrol - Determination of total dry residue (involatile material) - Gravimetric method
- prEN 15692 Ethanol as a blending component for gasoline - Determination of water content - Karl Fischer potentiometric titration method
- Ethanol as a blending component for gasoline - Determination of purity
- Ethanol as a blending component for gasoline - Determination of higher alcohols and methanol - Gas Chromatographic method

Biodiesel

- EN 14213:2003 Heating fuels - Fatty acid methyl esters (FAME) - Requirements and test methods
- EN 14214:2003 Automotive fuels - Fatty acid methyl esters (FAME) for diesel engines - Requirements and test methods
- EN 14078:2003 Liquid petroleum products - Determination of fatty acid methyl esters (FAME) in middle distillates - Infrared spectroscopy method
- CEN/TR 15160:2005 Petroleum and related products - Applicability of diesel fuel test methods for Fatty Acid Methyl Esters (FAME) - Information and results on round robin tests
- EN 14331:2004 Liquid petroleum products - Separation and characterisation of fatty acid methyl esters (FAME) from middle distillates - Liquid chromatography (LC)/gas chromatography (GC) method
- EN 14538:2006 Fat and oil derivatives - Fatty acid methyl ester (FAME) - Determination of Ca, K, Mg and Na content by optical emission spectral analysis with inductively coupled plasma (ICP OES)
- Specification for biodiesel, consisting of fatty acid methyl esters (FAME) and fatty acid ethyl esters (FAEE), for use as automotive fuel and blending into diesel fuel up to 10%.

- EN 14213:2003/AC:2003 Heating fuels - Fatty acid methyl esters (FAME) - Requirements and test methods
- EN 14214:2003/AC:2003 Automotive fuels - Fatty acid methyl esters (FAME) for diesel engines - Requirements and test methods
- EN 14214:2003/prAC Automotive fuels - Fatty acid methyl esters (FAME) for diesel engines - Requirements and test methods

CEN/TC 307

Biodiesel

- EN 14112:2003 - Fat and oil derivatives - Fatty acid methyl esters (FAME) - Determination of oxidation stability (Accelerated oxidation test).
- EN 14110:2003 - Fat and oil derivatives - Fatty acid methyl esters (FAME) - Determination of methanol content
- EN 14104:2003 - Fat and oil derivatives - Fatty acid methyl esters (FAME) - Determination of acid value
- EN 14105:2003 - Fat and oil derivates - Fatty Acid Methyl Esters (FAME) - Determination of free and total glycerol and mono-, di-, triglyceride content (Reference method)
- EN 14106:2003 - Fat and oil derivates - Fatty Acid Methyl Esters (FAME) - Determination of free glycerol content
- EN 14107:2003 - Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of phosphorus content by inductively coupled plasma (ICP) emission spectrometry
- EN 14108:2003 - Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of sodium content by atomic absorption spectrometry
- EN 14109:2003 - Fat and oil derivatives - Fatty Acid Methyl Esters (FAME) - Determination of potassium content by atomic absorption spectrometry