

Results of the White Paper and future prospects

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Introduction

- **During 2006, it was widely recognized among both users and producers that biofuels were an emerging global commodity**

- **Motivations**
  - **Security**
    - **Energy independence**
  - **Environment**
    - **Climate Change mitigation**
  - **Economics**
    - **Rural employment**

Background

Several meeting convened for establishing international relationships to support expansion of biofuels as a global commodity

- **EC and CEN Meeting in Brussels (February 2007)**
  - **Hosted by EU to promote the compatibility of biofuels-related standards in the EU, U.S., and Brazil to**
    - **facilitate the increasing use of biofuels in each market**
    - **support both exporters and importers of biofuels**

- **EU/US Summit (April 2007)**
  - **Build on work initiated in Brussels**
  - **Forge an accelerated process—the Biofuels Standards Roadmap—to achieve greater compatibility of standards**
  - **Supportive of goals of the International Biofuels Forum**

Background (continued)

International Biofuels Forum Established in March 2007

- **Governmental initiative among Brazil, China, EC, India, South Africa and U.S.**
  - **"United by the common mission of creating an international market for biofuels"**
- **Established two working groups**
  - **Codes and Standards**
  - **Information Exchange**
- **Subsequent Meetings**
  - **July in Brussels: accepted proposal to leverage the Tripartite Task Force efforts as background work for the Codes and Standards WG**
  - **November in India: report presented on progress of Tripartite Task Forces**

Background (continued)

- **International Biofuels Symposium in Washington (June 2007)**
  - **Hosted by U.S. (NIST) and Brazil (INMETRO) to advance goals identified in Brussels**
  - **Goals and timeline solidified in the Tripartite Agreement**

White Paper on Internationally Compatible Biofuel Standards

Partner Points of Contact:

- **Brazil Andre do Lago (formerly Antonio Simoes)**
- **EU Kyriakos Maniatis**
- **US Willie May (formerly Hratch Semerjian)**

Bioethanol Task Force Leaders:

- **Emerson Kloss (Brazil),**
- **Bob Saunders (EU),**
- **Ben Bonazza, (US).**

Biodiesel Task Force Leaders:

- **Marcos Cabral (Brazil),**
- **Barry Cahill (EU),**
- **Steve Howell, (US).**

Charge to Technical Task Forces

- Charged with classifying existing specifications into three categories

Category A	Category B	Category C
Specifications that are **already similar**	Significant differences between parameters and methods, but which **might be aligned** by work on the products, standards, and methods	**Fundamental differences**, perhaps due to regional regulation, which are not deemed bridgeable in the foreseeable future

- Tasked to make recommendations
  - » On the extent and relative impact of the work that would be needed to bring closer alignment between the specifications
  - » To form a preliminary basis for prioritization of next steps

Methodology

- **The standards were first compared as they presently exist**
  - **Many parameters were different**
- **Task Forces discussions and negotiations resulted in specific recommendations to address differences**
- **Recommendations to be forwarded to standards bodies for consideration and possible implementation**

Classification of Bioethanol Specifications

Category A *similar*	Category B *significant differences*	Category C *fundamental differences*
color	ethanol content	water content*
appearance	acidity	
density	phosphorus content	
sulfate content	pHe	
sulfur content	gum / evaporation residue	
copper content	chloride content	
iron content		
sodium content		
electrolytic conductivity		

Greater Compatibility Achieved

For bioethanol, there is no technical specification that constitutes an impediment to trade given the current situation

- **Additional drying and testing will be required by Brazil and U.S. exporters wishing to supply the EU market**
- **The impact and cost associated with these additional processes has not been evaluated by the Task Force**

Classification of Biodiesel Specifications

Category A *similar*	Category B *significant differences*	Category C *fundamental differences*
sulfated ash	total glycerol content	sulfur content
alkali and alkaline earth metal content	phosphorus content	cold climate operability
free glycerol content	carbon residue	cetane number
copper strip corrosion	ester content	oxidation stability
methanol and ethanol content	distillation temperature	mono, di-, tri-acylglycerides
acid number	flash point	density
	total contamination	kinematic viscosity
	water content and sediment	iodine number
		linolenic acid content
		polyunsaturated methyl ester

Regional Differences in Usage and Source Contribute to Divergent Specifications in Biodiesel

- **Fleet Differences**
  - **EU has a large volume of diesel-powered passenger cars**
  - **U.S. and Brazilian markets are composed of mainly heavy-duty vehicles and equipment**

- **Feedstock Differences**
  - **some specifications are feedstock neutral, but others are formulated around locally available feedstocks**

Regional Differences in “Biodiesel” Standards

- **U.S. and Brazil**
  - **Consists of fatty acid methyl esters (FAME) and fatty acid ethyl esters (FAEE)**
  - **Standards are for a product used as a blending component in conventional hydrocarbon-based diesel fuel**

- **EU**
  - **Consists of fatty acid methyl esters (FAME) ONLY**
  - **Standards in place for product used as both**
    - **a stand-alone diesel fuel**
    - **a blending component in conventional hydrocarbon based diesel fuel**

General Observations from Tripartite Work 2007

- The biofuels industry involved in global trade has found tools **to enable** the international trade of biofuel products
  - » costs have not been fully evaluated

As a result of the work, there is a better understanding of the reasons for differences in specifications.

In some cases, further alignment may not be desirable or necessary.
Some differences could be handled with buyer/seller contract.
Some differences may be due to analytical methods.

Further alignment where necessary along with better understanding of the basis for differences among standards and specifications could further enhance global trade and promote energy and economic security

Observations to Propose a Path Forward in 2009

- Leverage and build on the excellent working relationships developed among **technical experts from US, EU and Brazil** during the 2007 effort
- With this foundation, expand efforts in 2009 to include technical experts from **China, India and S. Africa**, partners in the IBF
  - Provide easy access to copies of tripartite report,
    - March 2008
  - Feedback requested by next IBF Meeting
  - Include National Metrology Institutes from China, India and S. Africa in the biofuels measurement standards efforts led by EU, Brazil, US

Main Conclusions from the White Paper

At present, bioethanol specifications are more closely aligned than biodiesel, because

- **Bioethanol is a single chemical entity**
- **Biodiesel is not a single chemical entity but a mixture, and is currently FAME or FAEE, making it a challenge to develop a common set of specifications**

Planned Supportive Activities of the Governments
through their National Metrology Institutes

EC BIOREMA FP7 project will focus on development and deployment of test samples for interlaboratory comparisons to "ground truth" biofuels reference materials and test methods

- Several NMIs will value-assign reference samples
  - INMETRO (Brazil)
  - NIST (USA)
  - JRC-IRMM (EC)
  - VSL (Netherlands)
  - NPL (UK)
- Study participants will be biofuels testing laboratories worldwide
- Timeframe: 2008 - 2010

Planning further work
Biofuels Standards Planning Meeting, NIST (Nov 2008)
Road Map 2009 - Points for Discussion

1. Category B Specifications

CEN, ASTM and ABNT are investigating prioritise category B specifications as a part of normal business.

What could be the role of the tripartite?

2. Glossary of terms and definitions

Short term action to provide clarity in the Tripartite discussions as well as towards third parties.

3. Data basis

Based on existing contacts try and collect as many as possible national specifications.

4. Logistics specifications for biofuels

4.1 Collect information on approvals needed concerning tanks, pumps, piping etc. in Tripartite; on a prioritised limited list for bioethanol & biodiesel.

4.2 If there are gaps, agree on common/local action according to the needed specs.

5. New test methods

5.1 Identify those test methods that are costly & present a financial hurdle for the industry & prioritise them.

5.2 Try to engage the analytical instrumentation industry to provide new cheaper solutions.

5.3 Try to identify funds for seed-money to kick-start the work.

General Issues

Expand the Tripartite ???

Is there interest attracting "biofuel producer countries" rather than "biofuel markets"?

Common Projects

Are there other areas of common interest, not affected by legislation, that common actions like the BIOREMA project can facilitate the industry and the stakeholders?


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Thank you for your attention