


# “Industry needs, Producers & Distributors: Biodiesel

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**2nd International Conference on Biofuels Standards  
Standards and Measurements for Biofuels:  
Facilitating Global Trade  
March 19/20, 2009  
Brussels, Belgium**



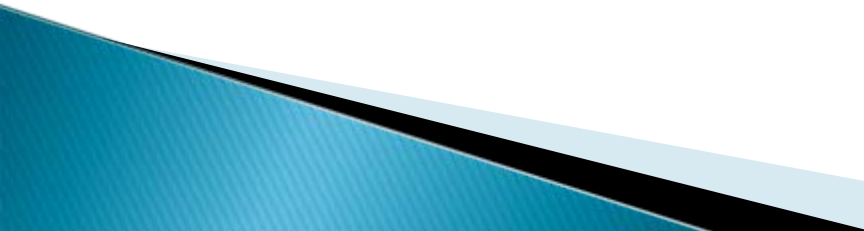
# Context of Biodiesel Discussions

- ▶ White Paper on Internationally Compatible Biofuel Standards, Tripartite Task Force (Brazil, EU, USA):
  - ▶ International Biofuels Forum – a government initiative among Brazil, China, the European Commission, India, South Africa and the United States – was launched in March, 2007 to “promote the sustained use and production of biofuels around the globe.”
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# Context of Biodiesel Discussions

- ▶ Industry (biodiesel, petrodiesel, engine), academia, and government are already active in researching and promoting biodiesel
  - ▶ Trade associations, i.e. National Biodiesel Board, European Biodiesel Board, etc.
  - ▶ Standard setting bodies (ASTM, CEN, ABNT, ISO, AOCS, INMETRO, NIST, etc.)
  - ▶ Coordination Bodies (Coordinating Research Council, CONCAWE, others)
  - ▶ Metrology Institutes
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# Context of Biodiesel Discussions

- ▶ Focus of this conference is on standards, measurements, and approvals
  - ▶ Premise: Additional work in these areas would help facilitate industry growth
  - ▶ There is a desire to not duplicate existing efforts being undertaken in these areas
    - And encourage cooperation
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# Context of Biodiesel Discussions

- ▶ This presentation focuses on key questions:
  - ▶ What metrology, standards, or approval areas can added government support be beneficial and not duplicate or divert existing industry efforts?
  - ▶ In what areas can international cooperation and/or data sharing be beneficial to all?
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# USA: Annual Biodiesel Technical Workshop

- ▶ Bring the best and brightest of the biodiesel technical community together
  - Engine, Fuel Injection, Petrodiesel, Biodiesel, Academia, Government Research (USDA, DOE)
- ▶ Update of latest research and technical info
- ▶ Brainstorm technical efforts needed to facilitate increased commercial sales of biodiesel, mostly in B20 and lower blends
- ▶ Prioritize the efforts through voting system
- ▶ NBB adopted the outcome as 'THE' biodiesel industry technical priority list for the USA

# NBB Technical Workshop, October 2008

<u>Priority</u>	<u>Biodiesel Technical Topic Area for Research/Development</u>	<u># Votes</u>
1	<b>Life Cycle/ GHG and Indirect Land Use</b>	<b>45</b>
2	<b>Biodiesel Quality Enforcement</b>	<b>41</b>
3	<b>2007/2010 Engine and After Treatment</b>	<b>40</b>
4	<b>Feedstock Development (3-8 years)</b>	<b>35</b>
5	<b>Impact of Minor Components</b>	<b>32</b>
6	<b>Biodiesel Stability</b>	<b>29</b>
7	<b>New, Faster, Better Test Methods</b>	<b>28</b>
8	<b>Lubricating Oil Effects with Biodiesel</b>	<b>23</b>
9	<b>Biodiesel Standards - B100 and Blends</b>	<b>19</b>
10	<b>Lower Cost Production Technology</b>	<b>19</b>
11	<b>Tank, Piping, Dispenser Approvals, including Pipelines</b>	<b>18</b>

# Much work is already underway

- ▶ **Life Cycle/ GHG and Indirect Land Use**
  - Much more science and clear definition is needed in this field, especially with indirect land use impacts
  - NBB: Sustainability Task Force has developed principles for sustainable biodiesel
  - <http://www.biodieselsustainability.com/>
- ▶ **Biodiesel could be the best option to produce both food AND fuel (mostly food):**
  - Soybeans are 80% high protein meal, 20% oil
  - Animals are grown for human consumption, not oil
  - People don't fry more french fries to get used oil for biodiesel...
  - Glycerin by-product can also replace crude oil based products like propylene and ethylene glycol

# On-going efforts for biodiesel

## ▶ Feedstock Development

### ▶ Improving/modifying existing crops

- More oil on the same land base:
  - Increasing yields (bushels per acre) on existing land
  - Helps both food supply (protein, oil) and oil for biodiesel
  - Increasing oil content (previously: minimize oil)
- Modify the makeup of natural oils/fats
  - Existing efforts: Make the best of what nature gives us
  - New efforts: Lower saturates, lower poly-unsaturates

### ▶ New crops/varieties: algae, jatropha, camelina, etc.

- Significantly more oil (and food)
- Optimized fatty acid profile
- While maintaining current crops

# On-going efforts for biodiesel

- ▶ ASTM Standards approved Oct 13, 2008:
  - D975 (updated) includes up to 5% biodiesel
  - D7467 (new) covers B6 to B20 blends
  - Diesel engine and vehicle companies now have the standards they have asked for to design and manufacture engines/vehicles for B20 and lower
- ▶ 2007/2010 engine/after treatment testing
  - Including engine lubricating oil impacts
  - All new vehicles should be designed and approved for a minimum blend of 20% biodiesel
  - US: B11 and B20 are common or are being mandated

# On-going efforts for biodiesel

## ▶ Additional Standards Efforts:

- Blended fuel standard for B20 and lower now approved at ASTM, improvements on-going
- Enforcement of standards (BQ-9000)
- Impact of minor components (ASTM Task Force)
  - More work is occurring here for biodiesel
  - Other 'renewable diesel fuels' must also control reaction completion and minor components in vegetable oils/animal fats not found or otherwise controlled in conventional petrodiesel specifications
- Biodiesel Stability (ASTM Task Force)
- Improving/modifying test methods (ASTM, ISO, CEN, ABNT, etc.)

# On-going efforts for biodiesel

- ▶ Industry already has effective efforts in all these areas and is quite busy working on them
- ▶ Each area could use more government support
  - I.e. funding for these efforts for trade associations, private industry, academia, and government researchers
- ▶ Additional government support in these areas is best done through existing channels and not duplicated through Tri-Partite, IBF or other new entities or channels

# Standards / Measurements Areas for Biodiesel for Future Int'l Efforts

## 11. Tank, Piping, Dispenser Approvals including Pipelines for B100, biodiesel blends

- ▶ This area is not well established yet by industry in the USA and the needs are immediate
- ▶ International collaboration or efforts could be beneficial
  - If the work to approve tanks, material of construction, pumps, dispensers or pipelines has been done in one country, why repeat that for every other country?
  - Data sharing or collaboration on existing and new data potentially beneficial, even if approvals must be country specific

# Standards / Measurements Areas for Biodiesel for Future Int'l Efforts

- ▶ The International Community needs to provide the Vehicle and Engine companies target levels of biodiesel to design vehicles/engines to (i.e. B5, B20, B100?)
- ▶ The standards for the pure blend stock depend on the finished blend to be used
  - ASTM now has B100, finished standards **for up to B20**
- ▶ This is both a market function (i.e. what are customers demanding) as well as a policy function (what levels will be targeted by public policy)
- ▶ NBB believes designing for B20 will cover existing and future needs within the lifespan of equipment
  - Engines not designed for B20 may be prohibited or may see decreasing market share based on mandates as well as increased customer use of B20
  - Many US based diesel manufacturers already have—or are planning for—B20 compatibility throughout their product lines which will put these companies at a competitive advantage

# Standards / Measurements Areas for Biodiesel for Future Int'l Efforts

- ▶ Work with metrology institutes:
  - SRM's, CRM's, etc. for developing and comparing analytical methods
- ▶ Glossary of Terms
- ▶ International Database of Standards and Reference Documents (Chuck Corr Proposal)

THANK YOU!

