



# Biodiesel Fuel Quality Enforcement Program

Clean Cities Expo  
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- Presented By -

**NBB: National Biodiesel Board**

**&**

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# Industry Growth

- 1999: 500,000 gallons produced
- 2004: Biodiesel Tax Incentive-25 Million gallons produced
- 2007: 500 Million gallons produced
  - ◆ 2012: 1 Billion Gallons projected
- Current Producers-175
  - ◆ Capacity 2.61 Billion gallons per year
- New plants under construction-39
  - ◆ New capacity: 850 Million gallons per year



# Biodiesel Defined

- Biodiesel industry began developing ASTM specifications for biodiesel in 1993.
- First provisional specification, ASTM PS 121, passed in 1999
- First fully approved specification for biodiesel as a blending stock for diesel, D 6751, passed ASTM balloting in 2001.
- Biodiesel, n. - a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, meeting ASTM D 6751, designated B100.
- **This definition should be included in all state statutes, rules and regulations.**





# Fuel Quality Enforcement

- Environmental Protection Agency
- Internal Revenue Service
- State Weights & Measures Departments





# Environmental Protection Agency

- Motor fuel or motor fuel additives must be registered with the EPA under the Clean Air Act. 42 U.S.C. 7545(b); 40 C.F.R. Part 79.8
- A biodiesel producer may satisfy Tier 1 and Tier 2 testing by arranging for access to “Group Data” on the testing of a product
- NBB completed the required testing that meets the nationally accepted biodiesel standard - ASTM D 6751
  - ◆ Any biodiesel that obtains registration via access to the NBB’s Health Effects Data must meet the current version of ASTM D-6751.
- Any biodiesel that does not meet the current version of ASTM D 6751 shall be liable for a civil penalty of not more than \$32,500 a day





# Internal Revenue Service

- ASTM D-6751 compliance is required of biodiesel gallons on which Biodiesel Tax Credit is claimed. 26 U.S.C. 40A(d)(1).
- Blender claiming the credit is required to obtain from the biodiesel producer a certificate stating that the biodiesel is properly registered with the EPA and meets the requirements of ASTM D-6751. IRS Notice 2005-62, sec. 2(h)(ii)
- Penalties: One who willfully signs any document which is known not to be true and correct shall be guilty of a felony and shall be fined not more than \$100,000 (\$500,000 in the case of a corporation) or imprisoned not more than three years. 26 U.S.C. 7206





# W&M Regulatory Authority

- US Dept of Commerce
  - ◆ National Institute of Standards and Technology (1988)
    - Originally National Bureau of Standards (1901)
  - ◆ Establish uniformity of W&M laws and methods of inspection among 50 states
- National Conference of Weights & Measures
  - ◆ 50 States are members
- State Legislatures / Departments
  - ◆ Laws / Regulations
- ASTM International (independent standards organization)
  - ◆ ASTM D 6751





# W&M Quality Process

- Adopt D 6751 as a matter of state law/regulation
- Develop specifics for testing and establish budget requirements
  - ◆ In-house vs. Certified Fuel Labs
- Encourage Valid Certificates of Analysis (COA) from producers and adoption of the BQ-9000 by producers and marketers



- To **promote** the commercial success and public acceptance of biodiesel
- To help **guarantee** that biodiesel fuel is produced and maintained at ASTM D 6751 levels



- Accredited Producer
- Certified Marketer

[www.BQ-9000.org](http://www.BQ-9000.org)



# ASTM D 6751-07b

<u>Property</u>	<u>Test Method</u>	<u>Limits</u>	<u>Units</u>
Calcium & Magnesium	EN 14538	5 max	ppm (ug/g)
<b>Alcohol control</b>			
<b>either Flash Point</b>	<b>D 93</b>	<b>130 min.</b>	<b>Degrees C</b>
<b>or GC methanol</b>	<b>EN 14110</b>	<b>0.2</b>	<b>% Volume</b>
<b>Water and Sediment</b>	<b>D2709</b>	<b>.050 max</b>	<b>% Volume</b>
• <b>Flash Point</b>	<b>D 93</b>	<b>93 min.</b>	<b>Degrees C</b>
Kin. Viscosity, 40C	D 445	1.9 - 6.0	mm <sup>2</sup> /sec.
Sulfated Ash	D 874	0.02 max.	% mass
<b>Sulfur S500</b>	<b>D 5453</b>	<b>0.05 max (500)</b>	<b>% mass (ppm)</b>
<b>S15</b>	<b>D 5453</b>	<b>0.0015 max (15)</b>	<b>% mass (ppm)</b>
Copper Corrosion	D 130	No. 3 max.	
Cetane number	D 613	47 min.	
<b>Cloud Point</b>	<b>D 2500</b>	<b>Report</b>	<b>degrees C</b>
Carbon Residue	D 4530	0.05 max.	% mass
• <b>Acid Number</b>	<b>D 664</b>	<b>0.50 max.</b>	<b>mg KOH/g</b>
• <b>Free Glycerin</b>	<b>D 6854</b>	<b>0.020</b>	<b>% mass</b>
• <b>Total Glycerin</b>	<b>D 6854</b>	<b>0.240</b>	<b>% mass</b>
Phosphorous content	D 4951	0.001 max	% mass
Distillation, T90 AET	D 1160	360 max	degrees C
Na/K, combined	EN 14538	5 max	ppm (ug/g)
<b>Oxidation Stability</b>	<b>EN 14112</b>	<b>3 min</b>	<b>hours</b>
• <b>Visual App.</b>	<b>D 4176</b>	<b>Free of un-dissolved water, sediment and suspended matter</b>	

**BOLD = BQ-9000 Critical Specification Testing ; BOLD= BQ-9000 Certified Marketer Surveillance Program**



- Obtain ASTM D 6751 COA from all Producers
- Take samples at B100 / B99 level
  - ◆ Biodiesel Plants, Pipeline Terminals, Bulk Distributors
- Utilize BQ 9000 Certified Marketer tests
  - ◆ Five (5) B100 Properties
  - ◆ Flash Point, Acid Number, Free Glycerin & Total Glycerin, Visual Appearance



## States Adopting and Testing biodiesel

- Legislatively adopted ASTM D 6751 40
- Regulations adopting ASTM D 6751 31
  - ◆ CT-Yes; RI-No
- Utilize ASTM D 6751 as guideline 2
- Utilize ASTM PS 121 (1999 specification) 2
- Proactively test B100 using D 6751 16
  - ◆ MO, NC, TN
- Using Quality Surveillance Program 13
  - AR, FL, TN, KY, IA, MO, OH, OR, WA





# New ASTM Biodiesel Blend Specifications

- B100: ASTM D 6751-08
  - ◆ Added Cold Soak Filterability
- B20: ASTM D 7467-08
  - ◆ Acid number, flash point, cetane, biodiesel content
  - ◆ FTC Labeling "Contains B6-B20" – 12/16/08
- B5: ASTM D 975-08a (diesel-transportation)
  - ◆ FTC - No pump labeling required for B5 or under
- B5: ASTM D 396-08b (home heating)



- NBB
  - [www.biodiesel.org/resources/fuelqualityguide](http://www.biodiesel.org/resources/fuelqualityguide)
  - Each state enforcement programmed listed
- Questions?
  - [info@biodiesel.com](mailto:info@biodiesel.com)
- AgriFuels LLC
  - [www.agrifuels.com](http://www.agrifuels.com)

