



# State W&M Quality Assurance

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*- Presented By -*

**NBB: National Biodiesel Board**

**&**

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# Presentation Outline

- State Authority to Regulate Fuel Quality
- ASTM D 6751 Specification Adoption
- Fuel Quality Enforcement
- Biodiesel Quality Assessment
- National Biodiesel Board Recommendations for State Quality Testing





# Authority to Regulate

- Dept of Commerce
- NIST
- ASTM
- National Conference of Weights & Measures
- State Legislatures / Departments



# 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.





# Adoption of ASTM D 6751

- Legislative
- Administrative





# Quality Enforcement

- Penalties
- Stop Sale
- Environmental Protection Agency
- Internal Revenue Service





# Environmental Protection Agency Enforcement

- 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.
  - ◆ A biodiesel producer may satisfy Tier 1 and Tier 2 testing by arranging for access to “Group Data” on the testing of a product
- The National Biodiesel Board completed the required testing that meets the nationally accepted biodiesel standard - ASTM D 6751
  - ◆ Any biodiesel that obtains registration via access to the National Biodiesel Board’s Health Effects Data must meet the current version of ASTM D-6751.
- An EPA inspector has the right to enter any part of the chain of custody to make inspections and conduct tests to determine compliance.
- Any person who violates EPA regulations shall be liable for a civil penalty of not more than \$25,000 a day





# Internal Revenue Service

- IRS has an active enforcement division for fuel compliance, which includes approximately 130 Fuel Compliance officers nationwide
- ASTM D-6751 compliance is required of biodiesel gallons on which Biodiesel Tax Credit is claimed. 26 U.S.C. 40A(d)(1).
- The 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





# Biodiesel Quality Monitoring

- Adopt D 6751 as a matter of state law
- Encourage Valid Certificates of Analysis and the adoption of the BQ-9000 program
- Establish capability to enforce B100 to D 6751 standard upstream of retail outlets
- Develop specifics for testing and establish budget requirements
  - ◆ Local Labs vs. in-house





# Quality Assessment Capability

- In House Laboratories
- Outside Laboratories



# BQ-9000

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

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





# ASTM D 6751 Testing

- BQ 9000 Accredited Producers
  - ◆ Required to generate COA
- COA required for governmental compliance
  - ◆ EPA, IRS (blend credit)
- Full Spec Testing ~\$1300 (out sourced)
- Critical Spec Testing ~\$535 (not including EN 14112)
  - Once BQ 9000 production process under control





## Quality Surveillance Program

- Obtain ASTM D 6751 COA from all Producers
- Take samples at B100 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



# Recommended Tests

Property	ASTM Standard	Quote
■ Visual Appearance	D 4176	\$ 0
■ Flash Point	D 93	\$50
■ Acid Number	D 664	\$50
■ Total Glycerin	D 6584	\$275
■ Free Glycerin	D 6584	<u>(inc.)</u>
▪ Cost		~\$ 375





## States Adopting and Testing biodiesel

- Adopted ASTM D 6751 34
- Utilize ASTM D 6751 as guideline 8
- Proactively test B100 using D 6751 15
  - ◆ MO, NC, TN
  - ◆ Refer to these states on setting up in-house labs
- Using Quality Surveillance Program 9
  - MO, TN, KY, FL, IL, KS, OR, WA, OH





# Fuel Quality Index

- NBB
  - [www.biodiesel.org/resources/fuelqualityguide](http://www.biodiesel.org/resources/fuelqualityguide)
  - [info@biodiesel.com](mailto:info@biodiesel.com)

