

Biodiesel Working Group Meeting

March 20, 2007

9:00 AM-1:00 PM

Conference Call Access (866) 747-3140

Pass Code 2264298#

Web Cast: <http://www.arb.ca.gov>

Agenda

- Introductions
- Update of Draft Biodiesel Advisory
- Biodiesel research study
 - Biodiesel emissions evaluation
 - NOx formation and mitigation evaluation
 - Multi-media evaluation
- Presentation by others
- Open discussion

Introductions

Dean Simeroth, Chief
Criteria Pollutants Branch

Gary M. Yee, Manager
Industrial Section

Robert Okamoto,
Staff Air Pollution Specialist

Draft Biodiesel Advisory

Purpose:

Clarify the use of biodiesel with respect to existing ARB regulations and provide guidance on the voluntary use of biodiesel.

Comments

Consider:

- Definition to address mono-alkyl esters
- Joint Advisory with DMS
- ASTM efforts
- Efforts to ensure fuel quality
- Biodiesel blending with California diesel fuel

Discussion

Draft Biodiesel Research Study

- Biodiesel emissions evaluation
- NOx formation and mitigation evaluation
- Multi-media evaluation

Biodiesel Emissions Evaluation

Objectives:

- Fully evaluate emissions
- Address NO_x impact

NO_x Formation and Mitigation Study

Objective:

Investigate the mechanism of NO_x formation and evaluate possible NO_x mitigation options

- Changes in fuel specifications-match blending
- Refinery process
- Additives

Pollutants

- Criteria emissions
- Toxic pollutants
- Selected greenhouse gases
- Other species
- Biological assays and chemical analysis

Test Design

- Integrate Emission and NOx mitigation evaluation
- Reference fuels: CARB and U.S. EPA 15 ppm sulfur
- Feedstocks: Soy and recycled grease
- Blend levels: B5, B20, B50, and B100
- Engine and chassis dynamometer
 - Up to two engines tested
 - Up to four vehicles tested (on-road and off-road)
 - Up to three test cycles
- Possible study expansions: Additional engines, LD vehicles, feedstocks, emission controls, toxics

Comments

- Engine, fuels, and test cycle selection
- Harmonize with US EPA biodiesel test program
- Create an advisory group to assist design of studies

Coordination with Stakeholders

- Form an advisory group
 - CRC, U.S. EPA, NBB
 - Other stakeholders
- Coordinate with US EPA biodiesel emissions study

Coordinate with US EPA Biodiesel Emissions Study

- Areas of common or overlapping interest
 - Engine selection
 - Fuel selection
 - Test cycle selection
- Areas where there are differences
 - NOx mitigation and multimedia
 - ARB wider range of emissions tested: characterization of unregulated chemical species, ultrafines, and biological endpoints
 - More biodiesel blend levels tested
 - Chassis dynamometer tests

NO_x Mitigation Study

- Follow-on work could be done at ARB heavy duty emissions test facility
 - Requires upgrade of the engine dynamometer

Important Issues to Resolve

- Criteria for engine/vehicle selection
- Criteria for fuel selection
- Selection of test cycles
- Work out details of the advisory group
- NOx mitigation study-rely heavily on advisory committee to address:
 - Additives tested
 - Define refinery process
 - Second generation biodiesel fuels tested
 - Update ARB engine dynamometer at additional cost

Research Team

- UCR CE-CERT
 - Modern engine test facility
- UCD
 - Unique capability to conduct toxic and biological sampling and analysis
- ARB
 - In-house chassis dynamometer testing and unregulated emissions including ultra-fine particle testing

Estimated Cost

- Biodiesel Emissions characterization study
 - Estimated core cost \$750,000
 - Additional funding address other issues such as additional feedstocks and vehicles/engines
- Biodiesel NO_x mitigation study
 - \$450,000

In Kind Contributions Needed

- Fuels
 - Biodiesel and biodiesel blends
 - CARB diesel
- Fuel specification analysis
 - ASTM D975
 - ASTM D6751
 - Blend level measurement
- Engines/Vehicles to be tested
 - Longer term commitment
 - Shorter term commitment
- Double up with US EPA with biodiesel fuels and engines

Multimedia Evaluation

Objectives:

- Evaluate impact of biodiesel and biodiesel blends relative to CARB ULSD fuel
- Consider feedstocks common to California

Multimedia Research Team

- UCD/UCB team
- Principle Investigators
 - Tom McKone, UCB
 - Tim Ginn, UCD

Estimated Cost of Multimedia Evaluation

- Estimated cost about \$400,000

Discussion

Presentation by Others

Open Discussion