Fuels Workshop on Regulatory and Non-Regulatory Fuels Activities for 2005

August 2, 2005

California Environmental Protection Agency

Air Resources Board

Agenda

- Introduction
- Gasoline
  - Proposal for Flexibility, Enforceability, and Consistency
  - Predictive Model
  - Permeation
  - Test Methods
  - CARBOB Model Validation
- Diesel
  - Low-Sulfur Implementation
  - Lubricity
  - Bio-diesel
- Other Topics?
- Open Discussions
- Closing Remarks

Discussion Topic: Gasoline

Proposal for Flexibility, Enforceability, and Consistency

Predictive Model

- Committed to the Board to review need for update about every 5 years – last updated 1999
- Issues
  - Permeation
  - Carbon Monoxide
  - New Data
  - Emissions Inventory Model - EMFAC
- Present Proposal for new model to Board in late 2005 or early 2006

Permeation

- In 1999, ARB staff learned that ethanol in gasoline increases evaporative emissions through a process known as permeation
- Permeation is when fuel migrates through the soft fuel system found on motor vehicles
- At the 1999 Hearing, the Board directed staff to conduct permeation study and report back

Permeation Test Program

- In 2002, the CRC and ARB co-funded permeation study
- Results:
  - Ethanol fuel higher than MTBE on all vehicles and higher than non-oxy on almost all vehicles
  - 65% or 1.4 grams/day more than MTBE gasoline
  - 45% or 1.1 grams/day more than non-oxygenated gasoline

Permeation Emissions Increase

- Study results do not directly provide the emissions impact of permeation
- Vehicle activity and fuel temperature data must be integrated to provide an appropriate temporal and spatial distribution of emissions
- Staff is preparing a new draft report for public comments

How to Deal with the Hydrocarbon Emissions Increase from Ethanol Use?

- Hydrocarbon emissions increase well into the foreseeable future
  - New vehicle standards help
  - Slow turn over of fleet
- Report back to the Board later this year
  - Better estimate of ethanol permeation impact on emissions
  - Measures to mitigate the impact
- Federal Energy Bill

What's Next

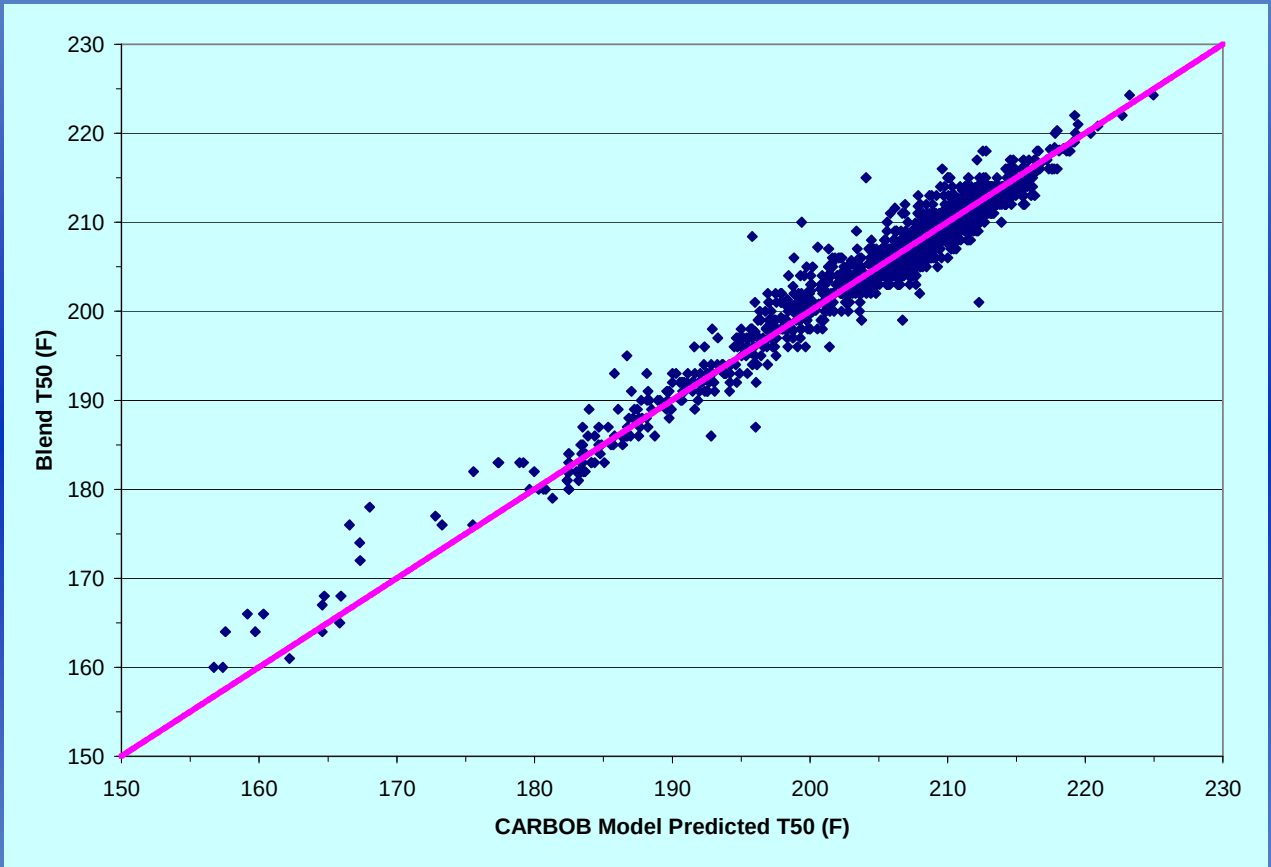
- The CRC is proceeding with a second stage of the test program
- Two additional vehicles: LEV II and PZEV
- Two additional fuels: 10% ethanol and a higher aromatics fuel
- E-85 will also be tested on an flexible fueled vehicle

Test Methods

CARBOB Model Validation

- CARBOB regulation approved by Board April 25, 2001
- CARBOB regulation allows refiners to certify blends without having to do hand blends of ethanol
- The Board directed staff to validate the CARBOB model using Phase 3 RFG
- Refiners have submitted their data
- Expect work to be finished by the end of the summer

Measured vs. Predicted T50



Topics:
Diesel

Implementation of Low-Sulfur Diesel Fuel Regulations

- Low-Sulfur regulation approved by Board in 2003
- Implemented in 2004
- Requires 15 ppmw sulfur limit on California motor vehicle diesel fuel
  - June 1, 2006 – Refinery
  - 45 days later – Terminals
  - 45 days later – Retail Outlets

Implementation of Low-Sulfur Diesel Fuel Regulations

- Section 2281(g) requires that each producer provide an updated version of their compliance plans to ARB Executive Officer
- So far, all California refiners appear to be on schedule and are expected to meet the June 1, 2006 limit of 15 ppmw

Lubricity

- ARB approved a lubricity standard for motor vehicle diesel fuel in 2003
- ARB provision sunset when Division of Measurement Standards start enforcement
- Division of Measurement Standards is surveying the statewide diesel fuel pool to assess the current state of lubricity in California

Bio-Diesel

- Presentation to the Board on bio-diesel on June 23, 2005
  - Presentation at arb.ca.gov/fuels/diesel/altdiesel/062405boardhrng.pdf
- Meeting of the Bio-diesel Working Group on June 8, 2005

Other Topics?

- California Wintertime Oxygenate requirement for CO Non-Attainment Area - LA

Open Discussions

Closing Remarks