Unconfirmed Minutes of Mack T-11 Soot Measurement Workshop
May 19 and 20, 2003
San Antonio, TX

Attendance:
Jeff Clark – TMC; Joe Franklin and Sandra Chapa – PerkinElmer; Katrina McIntosh – Ethyl; Brandon Weldon and Rich Mondelli – ExxonMobil; Eric Dorrell – Lubrizol; Mike Birke – SwRI;

Action Items:

1. Analyze data files in a common manner to eliminate data analysis differences. (Joe F. and Mike B.)

2. Investigate new round robin evaluation criteria. (Jeff C.)

3. Investigate furnace height effects. (Katrina M.)

4. Investigate pan size effects. (Joe F. and Mike B.)

5. Investigate the effects of an additional 30 second isothermal. (Brandon W.)

6. Investigate the effects of different flow rates. (All labs)

Opening Comments and Agenda Review – The workshop convened at approximately 1:20 pm.

Instrument Set-Up – Instrument and furnace types were reviewed: LZ, EG, and MB have a TA2950, but MB is using a different furnace (ceramic) than the other two labs (EGA). Flow rates were reviewed, concern was expressed over the 100 deg C/min heating ramp and the ability of the furnace to make the ramp. The ceramic furnace does not have this problem. Concern was expressed the different furnaces require different heating profiles to make the ramp rate. LZ is using a 50 deg C/min ramp rate.

Flow rates: EV – 60 ml/min; SR – 34 and 66; MB – 80 for purge, and 120 in the balance; LZ – 90 to the furnace, 10 to the balance; EG – 32 in the balance, 130 into the furnace.

Sample Handling and Preparation –
The following were reviewed:
Using paint shaker – all labs.
Sampling methods: capillary tubes, syringe, pipettes, spatula
Sample size / pan type: pans are of different sizes and the difference in surface area may impact results.

Furnace height can impact up to +/- 0.2% results for the PerkinElmer machines. Furnace height is not adjustable on the TA machines, which use a much larger surface.

Process Steps – D 5967 Annex A –
Actual vs. programmed heating rates – Joe mentioned that they have to 'force' the machine into the heating ramp by setting the programmed heating rate to 130 deg

C/min. The actual results come out close to 100 deg/min. Katrina's data shows that the smaller furnaces are easier to control to the prescribed heating rates.

Labs have found it necessary to make sure gas flow rates are accurate. XOM found a flow rate problem through the round robin process.

Start temperature, furnace height, flow direction and flow rate are some of the differences between the labs using PE machines. Ramp rates, flow rates, and furnace type are some of the differences between the labs using the TA machines

Data Analysis Techniques
Some labs using a temperature profile and some labs use a time profile. This is likely a large contributor to the differences in results. Labs can get different results from the same plot. This will be investigated further as an action item.

Conference Call
A conference call was tentatively scheduled for Wednesday, June 11th at 10 am Eastern time to discuss results of action items.