ASTM Biodiesel Update

June 8, 2005
ASTM Current Status

♦ ASTM D 6751 is the approved standard for B100 to be used for blending in the US
  – Some use it as standard for B100 use
  – Wording in D6751 allows for higher blends
  – ASTM has not, however, approved D6751 for B100 use—only for up to B20 in the final blend

♦ ASTM D 6751 has two grades
  – S500
  – S15
ASTM Biodiesel Ballots

- Improvements and changes to D 6751
- Incorporation of up to 5% biodiesel into the petrodiesel ASTM standard D 975
- A new stand alone specification for a finished B20 blend
  - This will be a new number
- Specifications for B6 to B19, B21 to B99, B100 lower priority, no efforts until above is completed
Balloted Changes to D 6751

♦ Modify:
  – Scope of standard to allow blending of biodiesel with petrodiesel not meeting lubricity and cetane values prior to blending. Finished blends must still meet D 975 values.
  – Acid value to maximum 0.5 mg KOH/gm (from 0.8)
  – Viscosity value to maximum of 5.0 cp (from 6.0)
Balloted Changes to D 6751

♦ Add:
  – Total combined Calcium plus Magnesium content of 5 ppm maximum
  – Total combined Sodium plus Potassium content of 5 ppm maximum
  – Oxidation stability:
    • **Either** Rancimat, EN 14112, 1.75 hour minimum, or
    • ASTM D 2274, 95C 16 h, w/glass fiber filters only, 10 mg/100 ml maximum
  – Linolenic acid concentration of 12% maximum
Balloted Changes to D 6751

♦ Replace:
  – Water and sediment, ASTM D 2709, 0.05% volume maximum

♦ With:
  – Water content using Karl Fischer Moisture of 500 ppm maximum
  – Total particulate contamination of 24 mg/kg
ASTM Update—B5 in D 975

- Balloting change of scope for D 975 to allow up to 5% biodiesel to be included
  - Sets precedent for ‘other non-petroleum’ blend stocks inclusion into D 975
- Use of European blend level method while ASTM finalizing better one
- Biodiesel must meet D 6751
- Finished blend must meet existing D 975
- No stability test method since one being incorporated into D 6751
ASTM Update—B20 Standard

- D 975 values, no distinction between #1/#2
- Diesel meet D975 prior to blend except:
  - Cetane, sulfur, aromatics, lubricity
- Biodiesel meet D 6751 prior to blending
- Distillation increase of 5 degrees C
- Addition of thermal stability
- Addition of acid number (0.3 max)
- No separate stability test at this time
  - Acid number is surrogate
  - Stability controlled at B100 level
  - Stability TF was split on having a separate B20 stability spec, so this ballot will root out negatives