



Relationship of Diesel Fuel Properties to Composition and Performance

Cetane Index Number – measure of ignition quality – effects cold starting, combustion and emissions. Calculated Cetane Index of Distillate Fuels. D 976 uses the density of the fuel and its mid-distillation temperature to estimate the Cetane number. Minimum number of 40.

Water – ppm testing the presence of water. Presence promotes Bacterial and Microbial growth. Maximum number of 500 ppm.

Water and Sediment – Affects fuel filters and injectors. Water and sediment are contaminants. In this test, a 100 ml sample is centrifuged under specified conditions in a calibrated tube. The amount of sediment and water that settles to the bottom of the tube is read directly using the scale on the tube. Maximum .05% of volume.

API Gravity – Gravity (weight per unit volume) of oils as measured by the API scale. API gravity changes are due to contamination with small amounts of gasoline or diesel somewhere in the delivery chain. Between 31 and 38.5

Distillation – % volume recovery. The distillation profile is a fundamental fuel property. In this test, a 100 ml sample is placed in a round bottom flask and heated to obtain a controlled rate of evaporation. The temperature is recorded when the first drop is collected (the initial boiling point), at recovered volume percentages of 5%, 10%, every subsequent 10% to 90%, 95%, and at the end of the test (end point).

IBP. Initial Boiling Point. In a standard laboratory distillation, the temperature on the distillation thermometer at the moment the first drop of distillate falls from the condenser. Minimum 300 F and 540 to 640 at 90%

Micro Organism – presence of Bacteria, Fungus, and Microbial Growth. Cultured test. Active Presence, positive or negative.

