- **Automated Determination of the Intrinsic Stability of Asphaltenes**
- **Containing Residues, Heavy Fuel Oils and Crude Oils**
- **Test Performed at Ambient Temperature**
- **Rapid Results (15 to 30 minutes)**
- **Three Simultaneous Measurements**
- **Reduced Operator Errors**
- **Operator Time Saving**
- **Windows XP Based Software**
- **Quick Payback of Investment**

Model 400 Automated Fuels Stability Analyzer applies a procedure for quantifying the intrinsic stability of the asphaltenes in an oil. A sample dissolved in toluene is titrated at room temperature with n-heptane until an optical device detects asphaltine precipitation.

Model 400 is applicable to residual products from thermal and hydrocracking processes, to products typical of ASTM D396 Grades 5L, 5H, and 6, and D2880 Grades 3-GT and 4-GT, and to crude oils. The instrument is limited to products containing a minimum of 0.5% concentration of asphaltenes.

This analyzer quantifies asphaltene stability in terms of state of peptization of the asphaltenes (S-value), intrinsic stability of the oily medium (So) and the solvency requirements of the peptized asphaltenes (Sa). The formalized test method using this instrument is now under active review by the ASTM committee.

The operating principal of Model 400 is based on titration and optical detection of precipitated asphaltenes. Three different mixtures of the sample oil plus aromatic solvent (toluene) are simultaneously and automatically titrated with paraffinic solvent (n-heptane) to cause precipitation of asphaltenes.

An optical probe monitors the formation of flocculated asphaltenes during the titration. The optical probe consists of a system of light emitting and light receiving components. Flocculated asphaltenes alter the detected light intensity.

The start of flocculation is interpreted when the optical probe detects a significant and sustained decrease in rate-of-change of the light intensity.

The results of the three flocculation determinations are used to calculate stability parameters and subsequently the intrinsic stability of the oil from the added n-heptane at the inversion point, the mass of specimen and the volume of toluene, for each determination

Supplied with 3 titration pumps, 3 titration test positions, 3 detection probes, Windows XP based proprietary software, and a PC.