

# Refractive Index of Petroleum Products

## test method

For the determination of total sulfur in petroleum and petroleum products that are single phase and either liquid at ambient conditions, liquefiable with moderate heat, or soluble in hydrocarbon solvents. These materials can include diesel fuel, jet fuel, kerosene, other distillate oil, naphtha, residual oil, lubricating base oil, hydraulic oil, crude oil, unleaded gasoline, gasohol, biodiesel and similar petroleum products.

## automatic petroleum refractometer

- Conforms to ASTM D1218, D1747, D5006, and D5775 test specifications
- Electronic heating and cooling twin Peltier system operates from 10 to 100°C, eliminating the need for a circulating water bath
- Automated and precise refractive index measurements
- Detection of correct sample loading with warning message
- Monitors cleaning between samples and warns if the instrument is not cleaned correctly.
- Designed for samples ranging from clear to highly colored, dark and opaque
- Measures to the fifth decimal place refractive index or hundredths place in percent solids
- Multipoint calibration routines maximize accuracy
- Automatic detection of temperature and reading stability
- Full networking capability with direct data transfer into Excel, .pdf and other formats

The Koehler Automatic Refractometer uses precision optics and superior image analysis to extend the repeatability and accuracy of refractive index measurements for petroleum products. Subjectivity is removed from tests results because no manual activities such as aligning shadowlines or reading analog scales are necessary. Opaque hydrocarbons present no problem for this unit which uses reflected light measurement technology as opposed to manual refractometers which are of the transmission type.

The refractometer incorporates numerous innovations designed to improve the accuracy of petroleum product testing. A linear scanned diode array shadowline sensor is sensitive enough to read even the most demanding samples. A 589 nanometer filter gives true Sodium D-Line refractive index readings. A built-in twin Peltier heating and cooling system gives the instrument the capability of reading at up to 100°C without the need for an accessory water bath. The measuring system guides the operator through every step of the process, advising if enough sample has been used and if it's placed correctly, providing information about the cleaning process and if residue has been left behind.

Set-up, diagnostic and calibration routines are displayed with easy to follow step-by-step instructions. User-developed customer calibration curves may be programmed allowing automatic temperature correction, direct percent concentration, percent reaction completion, etc. This unit has been used successfully throughout the petrochemical industry.



K27580 Automatic Petroleum Refractometer w/Touch Screen

## specifications

Conforms to the Specifications of: ASTM D1218, D1747, D5006, D5775

Measurement Scales:

- Refractive Index (RI)
- BRIX (% sucrose)
- Temperature Corrected RI
- Temperature Corrected BRIX
- Ten User-Programmable Scales

Illumination: 589nm light emitting diode with interference filter (estimated life: 100,000 hrs)

Range: - Dissolved Solids: 0 to 95% solids

Refractive Index: 1.26000 to 1.72000nD

(nD - Sodium D-Line Refractive Index)

Readability: - 0.01% Solids 0.00001nD

Precision:

- Refractive Index Standard Oils  $\pm 0.00002$
- Typical clear aqueous samples, % Solids Temperature Compensated, as sucrose  $\pm 0.02\%$

Calibration Fluid: refractive index standard oil, NIST traceable nominal value 1.495 RI, 67.61 BRIX

Sample Types: Transparent, translucent or opaque

Prism Assembly: Stainless steel, synthetic sapphire sealed with solvent-resistant epoxy

Calibration:

- 1 point - Water only
- 2 point - Water and refractive index or Brix standard

Electrical Requirements 100-240V 50/60Hz

Dimensions l x w x h, in.(cm)

17 x 12 x 13 (44x31x33cm)

Net Weight: 23 lbs (10.5kg)

Shipping Information

Shipping Weight: 30 lbs (14kg)

Dimensions: 5 Cu. ft.

## ordering information

catalog no. description

**K27580** Automatic Petroleum Refractometer w/Touch Screen  
100-240V 50/60Hz

### accessories

**K27505** Calibration Fluid Certificate of NIST Traceability Included



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