



APPLICATION NOTE – CHEMICAL PRODUCTION

Application Need: Refractometry has been a major tool in the chemical laboratory for over a century. It is used to determine the concentration of solutions, as a quality control measure for incoming raw materials as well as finished goods, and as an aid in identifying unknown substances since the late nineteenth century. In principle, every substance has a unique refractive index (RI), which could be used in its identification.

The Problem: A wide variety of chemical laboratory analysis techniques are used to determine the nature of a chemical substance. However, nearly all of these techniques require extensive sample preparation, relatively expensive laboratory equipment, long analysis times, highly trained operators, or a combination of several or even all of these factors. Refractive index on the other hand, can be utilized to rapidly, and accurately determine the concentration of solutions, as an aid in identifying unknown substances, and to characterize the optical properties of the solution.

Chemicals can be highly colored, and even opaque. The manual, or Abbe refractometer, projects a visible shadowline on the crosshairs in the instrument. This shadowline is often blurry. Operator misinterpretation of the shadowline can result in significant measurement errors.

The Solution: Reichert automatic digital refractometers are ideal for measuring RI. Here is why:

- ✓ Sample color or opacity does not effect automatic refractometers. Fully automatic refractometers are also known as reflected light refractometers because they utilize the light that is reflected by the sample for analysis. ✓ Reduced operator error. An electronic detector is used instead to take the measurement.
- ✓ Temperature may be controlled via an external water bath circulator on the AR6 Series, ARIAS, or MARK models or by a built in Peltier Thermal Control System on the AR7 Series.

Product Recommendations:

AR7 Series Automatic Refractometers, Reichert Cat # 13107000 & 13107700 **AR6**

Series Automatic Refractometers, Reichert Cat # 13106000 & 13106600

r²i300 compact Automatic Refractometer, Reichert Cat # 13980000 **AR200**

Digital Handheld Refractometer, Reichert Cat # 13950000

Brix/RI-Chek pocket Digital Handheld Refractometer, Reichert Cat # 13940000

ARIAS OptiMatrix 500 Semi-Automatic Refractometer, Reichert Cat # 1310499SA

ABBE MARK III, Reichert Cat # 1310488M