

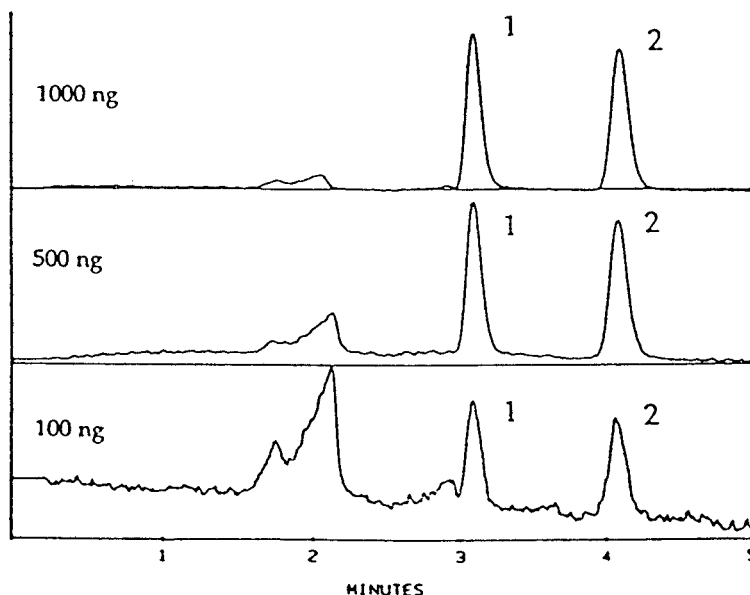
High Sensitivity Refractive Index Detection: Detection Limits for Sugars

In Lab Highlight 0346 (11/87) it was reported that the Waters™ 410 Differential Refractometer has a noise level 50 times lower than that of the Model 401. This lower noise permits detection of sugars at injected levels of 100 ng or less (Figure 1). This contradicts the widely held view that refractive index detectors can detect sugars only at the microgram level.

Figure 1

Column - 5 μ Resolve™ C₁₈ Cartridge
8mm x 10cm
Mobile Phase - Water, 1 mL/min
Detector - Waters™ 410, Sens.=1024
Data System - Waters 840, Rev. 6.2
Injection Volume - 20 μ l

Peak 1 - Glucose
Peak 2 - Sucrose



In order to obtain these detection limits, it is also necessary to minimize baseline drift. In contrast to noise, which remains at a constant level in a properly functioning detector, the amount of drift can vary widely and is often related to factors under the control of the operator. The Waters 410 provides the necessary detector control to reduce drift to the lowest possible level.

The subject of drift will be considered in greater detail in Lab Highlight #0382.