Process Insights
Premium Insights Into Process

GuidedWave

Application Note:

On-Line Monitoring of Water in Ethylene Glycols with a ClearView® db Photometer

Purpose: To determine water content in ethylene glycol (EG) without sample temperature control.

Experimental: Our NIR Lab412 spectrometer was used to measure the NIR spectra of 0 to 100% water in EG in the 18-43°C temperature range using a 10 mm pathlength SST probe. The resulting data were then used to define the wavelengths for our on-line process photometer.

Results: The resulting spectra are shown in Figure 1 for 5 concentrations ranging from 0-100% water in EG, each at 20, 25, 30, 35, 40 and 45°C. A multiple linear regression was performed, see Figure 2. Excellent linearity (R^2>.9999) is achieved using 4 wavelengths in the range tested showing data at all temperatures.

Conclusions: Our low cost ClearView db photometer with 4 filters can be used to determine water from 0-100% in ethylene glycol using a 10 mm optical path insertion probe, or a flow cell (for a slip stream) on-line. The ClearView db can be configured with 4-20 mA analog outputs (6 answers max on a single channel system, and 4 per channel on a dual channel system) and corresponding contact closure outputs to alert error states. Modbus communication over Ethernet is also standard.

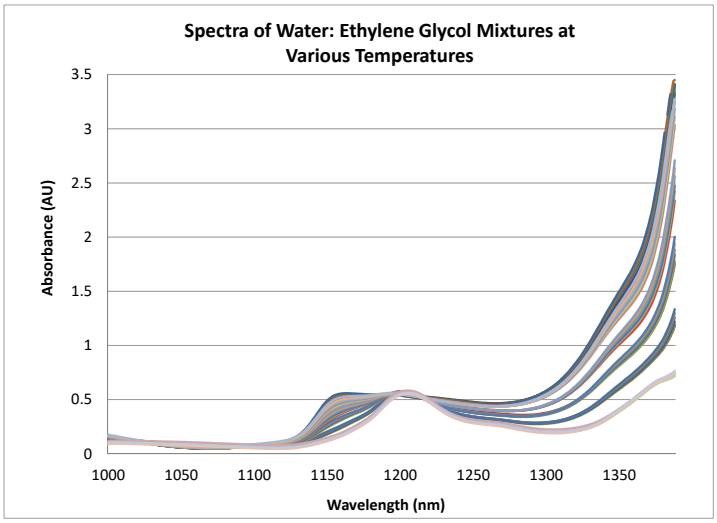

Figure 1

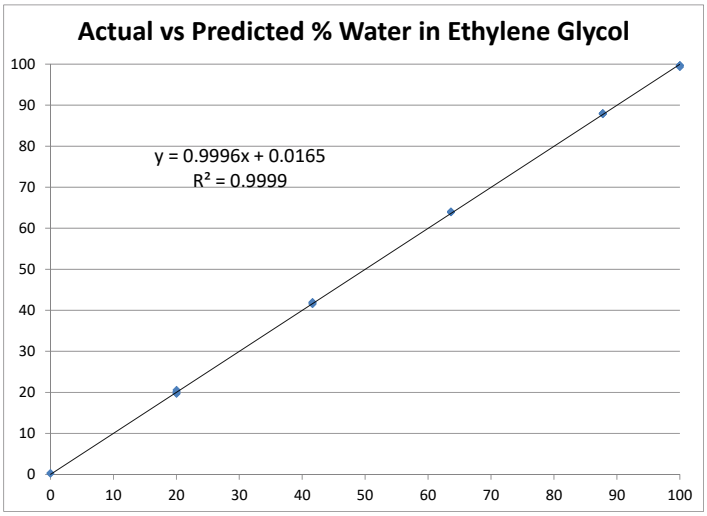

Figure 2

ClearView® db Enclosure Options

Zpurge Unit Class I, Division 2	ExProof Unit Class I, Division 1	General Purpose Unit

Process Insights
Premium Insights Into Process
GuidedWave

+1 916-638-4944 phone
+1 916-635-8458 fax

gwinfo@guided-wave.com
a Process Insights Brand

www.guided-wave.com

https://www.process-insights.com/

Literature: 3022-13-07