Introduction:

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The purpose of this study is to determine the ability of an on line Near Infrared Transmission analyser to distinguish between differing samples of wastewater. This study was not undertaken to develop a calibration or to prove the method, but to demonstrate that the increasing level of solids, i.e., protein, fat and lactose in wastewater samples can be observed using a NIT analyser.

Description:

Five Samples of wastewater with varying degrees of total solids were acquired and scanned in a standard liquid cell with a pathlength of 10mm. Scans of each sample were collected between 720 and 1100nm. All samples were scanned in duplicate.

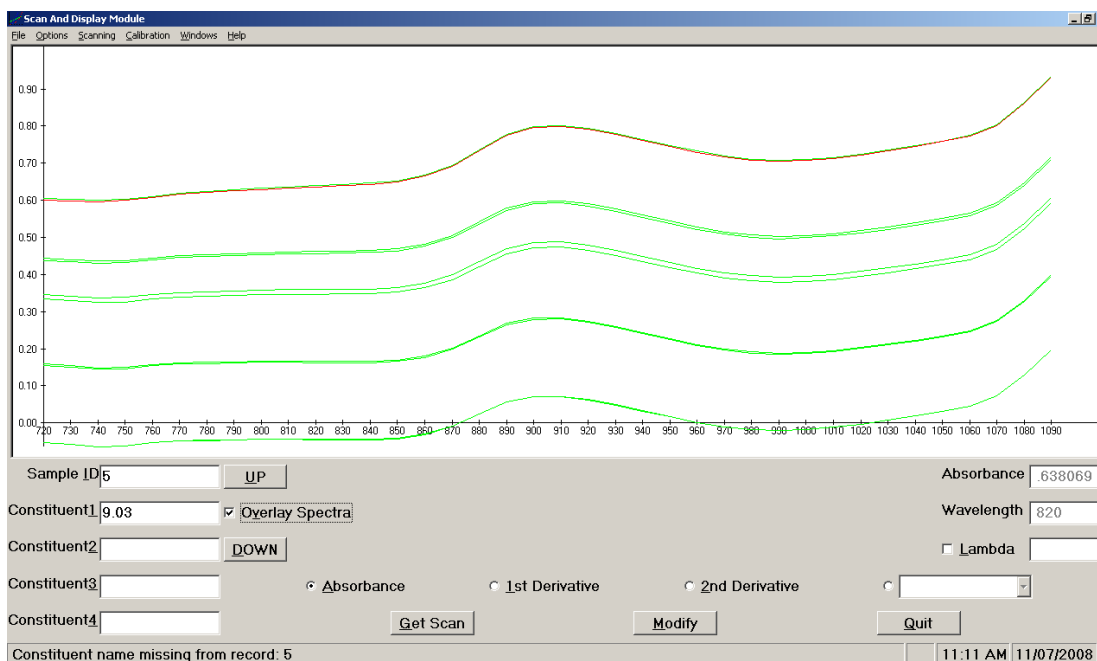Figure 1 below shows the spectra of the scanned wastewater samples.

Figure 1: Absorbance Spectra for wastewater samples.

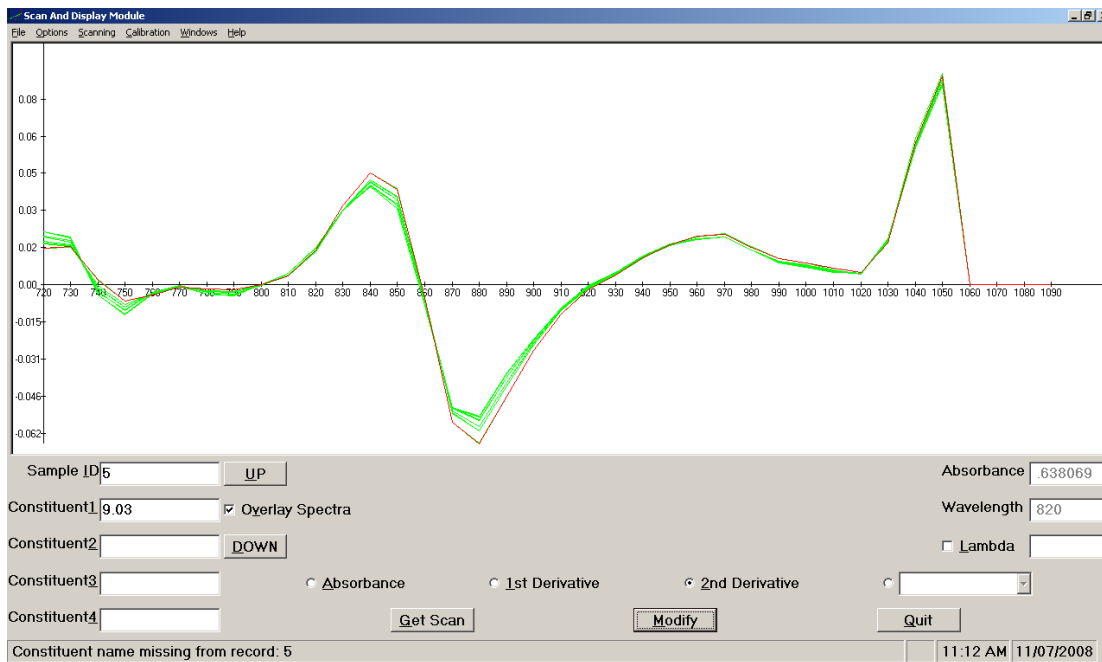Figure 2 below shows the second derivative spectra for the scanned samples of wastewater.

Figure 2: Second derivative spectra for wastewater.

Conclusion:

The spectra for wastewater are fairly consistent despite the increase in absorbance due to increases in total solids. However, the second derivative spectra removes the baseline shift due to scatter and shows the effects of increasing total solids in the waste stream. At 890nm, the second derivative spectra show excellent linear response to total solids concentration.

Therefore, it can be concluded that an NIT analyser, such as the FOP-38 On Line Analyser working in a transmission mode, is suitable for measuring the Total Solids content in this waste stream.