WAMBOLT, CAROL L.[1], ALLA A. BAGRAMYAN[1] and DORIS C. FLEMING[1], [1]Amalgamated Research, LLC., 2531 Orchard Drive East, Twin Falls, ID 83301. **Comparison and application of near-infrared (NIR) and attenuated total reflection fourier transform infrared (ATR-FTIR) spectroscopy for determination of betaine in sugar factory samples.**

The use of secondary analytical methods, such as near-infrared (NIR) and attenuated total reflection fourier transform infrared (ATR-FTIR) spectroscopy, for the control of manufacturing processes and product quality, has increased dramatically in the past decade. The interest in these secondary spectroscopic techniques is due, in part, to the fact that they are simple, rapid (< 30 second analysis time) and provide levels of accuracy and precision, comparable to primary reference methods. For this study, NIR and ATR-FTIR spectroscopy was investigated and compared for predicting betaine content. 14 individual factory samples, with betaine concentration ranging from 0.2 - 50.0%, were sampled over a period of time. Each sample was analyzed with the primary analytical method, high performance liquid chromatography (HPLC), then NIR and ATR-FTIR spectra of the same samples were collected. Chemometric approaches were used to analyze spectral data, correlate it with primary method results and generate multivariate calibration models to predict betaine concentration. The predictive performance of the NIR and ATR-FTIR calibration models will be discussed.