

## POSTER SUMMARY

**OPTIMISATION OF NIRS ANALYSIS OF MILL INTERMEDIATE SAMPLES**

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The analysis of factory intermediate streams (clear juice, syrup, A-, B- C-masseccutes, A-, B-molasses) using transmission Near Infrared Spectroscopy (NIRS) simultaneously for brix, pol, sucrose, glucose and fructose in a mill environment has many advantages. The most important is the almost immediate reporting of results which can be used for process control, and the ability to analyse many samples over a short period for troubleshooting purposes.

Successful implementation of the NIRS technology requires the development and on-going maintenance of appropriate prediction equations. A set of initial intermediate stream prediction equations had been previously developed for each analyte. The use of these prediction equations proved problematic as each product required a different sample dilution in the range of 14 to 16 g diluted to 100 g. This is not ideal in a mill laboratory environment where simplified, robust procedures are required. It was also realised that long-term prediction equation maintenance and updating of 35 equations would prove to be problematic.

Two changes were made to simplify development, analysis and maintenance:

- making a single dilution for all products (15 g to 100 g); and
- combining all individual production predictions into a single prediction equation for each analyte, resulting in only five individual analyte prediction equations, *viz.* brix, pol, sucrose, glucose and fructose.

This poster describes this process and the results achieved following these changes.

*Keywords:* NIRS, calibrations, predictions, factory streams