POSTER SUMMARY

MONITORING AND MANAGING LOSSES ACROSS THE C-STATION USING THE SMRI-NIRS TECHNOLOGY

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Abstract

All of the South African (SA) sugar factory laboratories have adopted the use of Near Infrared Spectroscopy (NIRS) instruments with process stream analyte prediction equations supplied by the Sugar Milling Research Institute NPC (SMRI). The predictions include sucrose, fructose, glucose, pol, brix, conductivity ash, dry solids and most recently, colour. With the SMRI-NIRS analytical method having already replaced conventional analytical methods at some SA sugar factories, the SMRI is pioneering the use of the technology's rapid and reliable predictions to assist with determining the root cause of factory processing inefficiencies and ultimately improving sucrose recoveries.

The C-centrifuge station of a factory is certainly a focus area to improve recoveries as it presents a factory with the last attempt to recover sucrose. In doing so, however, the station has to be closely managed to minimise non-sucrose recirculation. This poster details an extension to the existing SMRI-NIRS C-centrifuge toolkit. The work conducted by the SMRI at a SA factory provides insights on how to use the SMRI-NIRS toolkit to identify inefficient centrifuges and poor practices. The work completed included:

- Analysing the final molasses from individual C-centrifuges to calculate Target Purity Differences (TPD)
- Performing sucrose-based Sugar-Juice-Molasses (SJM) recovery calculations for the C-station as a performance benchmark
- Completing colour balances to assist in the development of colour management strategies
- Quantifying the non-sucrose recycled to the boiling house and reporting on its impact on raw sugar quality and boiling house recovery
- Using the centrifuge balances to validate assumptions of separation factors used in centrifuge models

Keywords: NIRS, TPD, non-sucrose, colour, C-station, molasses