

## POSTER SUMMARY

## THE SMRI-NIRS TECHNOLOGY: PROFICIENCY AND QUALITY ASSURANCE SCHEME

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The Sugar Milling Research Institute NPC (SMRI) provides the South African sugar factory laboratories with updated Near Infrared Spectroscopy (NIRS) prediction equations for analysis of juices, intermediates and final molasses on an annual basis. The SMRI-NIRS technology, based on transmission mode, has already been widely accepted in the sugar industry. To ensure continued confidence in the technology requires ongoing procedures to provide evidence of the reliability of the analytical results. A proficiency and quality assurance scheme has been developed and will be fully functional in the 2019 season.

This poster describes the various elements and processes of the proficiency and quality assurance scheme and shows how the information will be used. The following components are discussed:

- Quality control procedures are used to ensure the ability of the annually updated SMRI-NIRS prediction equations to predict correctly.
- Instrumental test information from the NIRS instrument weekly performance qualification (PQ) report will be collated from each instrument at every mill. This will be used as an indication of how well the instrument works.
- Scans of defined concentration sucrose solutions from each NIRS instrument will be used by the SMRI to establish where any abnormalities exist and take corrective action.
- A proficiency scheme will be used to evaluate the individual laboratories' techniques and instrumentation. A random selection of previously analysed raw house samples will be supplied to each mill on a regular basis for analysis. The scans and NIRS results will be returned to the SMRI for evaluation and, where problems exist, to identify the route cause. The SMRI-NIRS results will show whether the correct equations are being used by the analysts and whether the SMRI-NIRS equations are predicting correctly.

*Keywords:* NIRS, equations, proficiency scheme, Quality control