2016

Improving mill efficiency through rapid analysis methods

Keeffe, E

http://hdl.handle.net/11079/15561

Downloaded from Sugar Research Australia Ltd eLibrary
Improving mill efficiency through rapid analysis methods

This project has sought to develop turn-key, diode array benchtop NIR spectroscopy systems for the rapid analysis of sugar factory products. By Eloise Keeffe, Senior Researcher, SRA

Near infra-red spectroscopy is a well utilised tool in the Australian sugar industry, however adoption of bench-top systems in the mill laboratory has been low.

The cause for this is two-fold: the high capital cost of benchtop instruments and the excessive resource investment required to develop local calibrations at mill level.

The advent of diode array systems has solved the first problem. The second is more challenging.

This project has sought to develop turn-key, diode array benchtop NIR spectroscopy systems for the rapid analysis of sugar factory products.

This has been achieved through the development of global calibration models that comprise data from 14 different mills across multiple seasons.

Global calibration models of varying performance (qualitative to quantitative and ready for use) exist for all factory products, including: prepared cane, bagasse, juice, syrup, magma, massecuites, molasses, raw sugar and mud. Performance statistics are available.

Mill trials during last year’s crush indicated that most calibration models were performing across multiple sites better than expected. Little to no localisation is required.

Characterisation of the mill products is also ongoing and will be used to better understand the chemical mechanisms defining each calibration model.

Additional trials have been planned for this year to expand the dataset and finalise the global models. If you wish to host a trial, please contact one of the investigators.

For more information contact Eloise Keeffe ekeffe@sugarresearch.com.au or (07) 3331 3351.