THE INCREASING USAGE OF GEOSCAN ONLINE ANALYSIS IN PHOSPHATE PROCESSING

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Digital transformation has become a key motivator in a modern processing plant. Understanding and incorporating technologies and sensors into a process has become critical tor a plant to remain competitive and economic. For more than two decades, Scantech's GEOSCAN-M elemental analyser has been a part of the digital transformation of mine sites and processing plants around the world across multiple commodities. The phosphate industry has been quick to recognize the potential for the use of such technology in a variety of locations within a process, with the first GEOSCAN installed in phosphate in 2014. Since then, more than 20 installations in plants across four continents have seen a wide variety of use cases.

A range of significant benefits have been obtained through the use of real time data provided by the GEOSCAN. Due being able to customize calibration specifically for a particular site and location, the achievable benefits are widespread. The GEOSCAN can be used to measure feed from a mine into a beneficiation plant, providing feedback on material grades or even identifying properties of the material that can be sorted according to how the material should be processed. It is possible to segregate material by different features of its quality, possibly into different stockpiles. Subsequently, the GEOSCAN data can be used to control blends into a plant and to confirm specifications, and as a feed-forward controller for processing. Further downstream, the data can be used as feedback for the beneficiation process, as well as feed-forward for further processing. Sites have been able to incorporate GEOSCAN data for acid reaction control, as well as to confirm product quality. In a product stream, the measurement of trace elements can be used for quality control processes.

This paper provides an overview of GEOSCAN use cases in phosphates, including a variety of results from installations around the world. The benefits achieved are summarized, as well as presenting case-study data for different application areas. Figure 1 shows an example of BPL measurement for a feedback controller in a mine, while figure 2 shows the output of P2O5 measurement for feed-forward control of an acid reactor. These and a range of other results will be presented together with use case discussion. Moisture measurement is also discussed, with such results shown in figure 3 below.

As can be seen in the figures above, there is excellent agreement between GEOSCAN and laboratory data, ensuring that the results observed in the plant can be relied upon for robust process control. Scantech enjoys its reputation as a leader in this sector and to continuing to develop its relationship across a wide variety of sites and to seeing increasing GEOSCAN usage in phosphates.