

GEOSCAN-M USE AT A MIDDLE EASTERN PHOSPHATE PLANT

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Access to real-time data is critical for process control. Scantech’s GEOSCAN-M elemental analyser has been utilized in the minerals industry for the past two decades in a range of different commodities. Already established for use in the coal and cement industries, commodities such as iron ore, copper, lead zinc, manganese, bauxite and lithium have benefited from the real-time access to elemental composition data on conveyed flows provided by the GEOSCAN. The phosphate industry has also recognized the benefits of the equipment and a number of operators and companies have installed GEOSCANs to provide real-time analysis back to the plant.

A Middle Eastern phosphate company, one of the biggest phosphate producers in the region, entered discussions with Scantech regarding the use of a GEOSCAN for analyzing phosphate rock, and underwent a process that included thorough vetting and due diligence, and included test work conducted on samples sent from site to Scantech in Australia. The GEOSCAN-M was installed and commissioned at the Middle Eastern mine in 2017. Initially, the GEOSCAN was intended to be used for grade control, and is currently being used for this purpose, as well as to control downstream processes. Analysis data for a wide range of elements is available in real time allowing for accurate and timely control of ore processing.

This paper provides an introduction to the GEOSCAN-M and how it works in the phosphate industry, while treating the installation with the Middle Eastern site as a case study. The benefits achieved by site as a result of their GEOSCAN are summarized, as well as a discussion of the GEOSCAN performance in phosphate. Recent calibration data comparing GEOSCAN results to laboratory results are shown below in figures 1 and 2 for phosphate and silica, with a summary of root mean square deviation (RMSD) performance between laboratory and GEOSCAN for these and other elements provided in table 1.

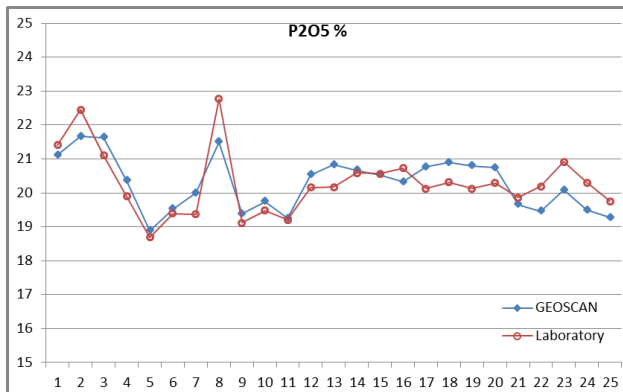


Figure 1 – Comparison of GEOSCAN and laboratory data for phosphate

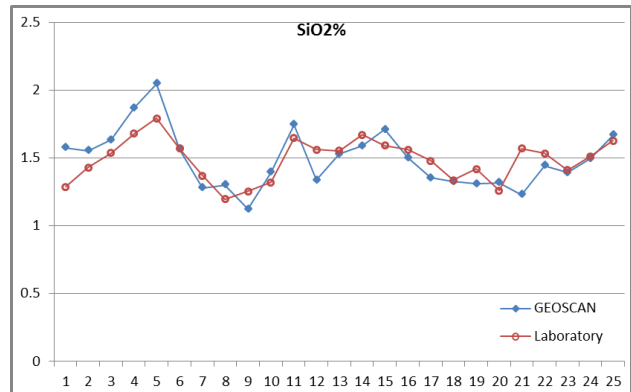


Figure 2 – Comparison of GEOSCAN and laboratory data for silica

Oxide	P ₂ O ₅ %	SiO ₂ %	CaO %	MgO %	Cl ppm
RMSD	0.55	0.14	0.51	0.15	71

Table 1 – RMSD between GEOSCAN and laboratory

As can be seen, excellent agreement between GEOSCAN and laboratory results is observed on dynamic data, allowing operators to have confidence in the data being used for control. Scantech enjoys an ongoing relationship with site in providing further utilization of GEOSCANs across their sites in phosphate.