ASSESSMENT CRITERION FOR AUTOMATED LABORATORY SYSTEMS IN THE MINING INDUSTRIES

Tina Knudsen,
FLSmidth Automation, DENMARK

ABSTRACT

This article contains a qualitative assessment criterion for automated laboratory systems in the mining industries as well as an overview of the suite of existing, well-proven automated lab systems, which ranges from smaller systems designed for preparation for X-Ray Fluorescence (XRF) analysis to large, multiple robot systems able to undertake several preparation and analysis tasks.

The smaller systems may include equipment for fused bead preparation or for powder sample in steel ring preparation or a combination of both. It will be shown that these kinds of systems can be designed to avoid contamination between samples and therefore will be useful in labs with a need to process different types of samples in the same system.

The larger systems may contain all required equipment from reception and drying of samples, through crushing, splitting and grinding to XRF fused bead preparation including Loss On Ignition (LOI) and XRF analysis. Or they may be systems for port sampling of ores including all required sampling and splitting steps plus testing of physical and/or chemical properties.

The overview of the various possibilities for automated lab systems will focus not only on the included equipment, but also on the software that controls the automatic system and the flexibility this needs to have when treating samples of various origin and with changing physical and chemical properties.