

Modernization of Sample Preparation at Lone Star Industries Greencastle, Indiana

John J. Wachal, Quality Manager, Lone Star Industries, Greencastle, Indiana
Robin J. Riester, Sales Manager, Herzog Automation Corp., Norcross, Georgia

Abstract

In 1994 a Master Plan was developed to upgrade the control system at Greencastle. The plant was first built in 1969 and systems in use reflected technologies of that time. A central part of this Master Plan had to be an upgrade of the automated sampling and sample preparation line that was installed in 1979 and was quite innovative for that time.

The sampling and sample preparation line in existence since 1979 was set up to accept wet slurry from a raw mill, dry it, and then pass it through an automatic pulverizing mill and automatic pelletizing press. Pressed pellets were then transferred to a Philips PW1660 x-ray fluorescence spectrometer for analysis.

In 1998 a new line was installed that used a new automatic fusion machine as its centerpiece to allow the laboratory to produce fused beads for XRF analysis in the place of the pressed pellets.

Purpose

The new sampling and sample preparation line shows a creative solution taking advantage of newly available equipment used together with already proven and operated pieces to upgrade the reproducibility and consistency of analytical results. This paper will review the equipment strategies employed; the reasoning behind the switch from pressed pellets to fused beads for XRF analyses, and some of the results of this solution.

Control of the cement manufacturing process is only done with the aid of correct quality data. This system is proving to be a strong enhancement to this quality control effort.

Introduction

Modern cement plants require new methods of optimizing both existing and transitional process departments. The application of new technologies, instrumentation, and methods enables the plant to meet needs for more stable operations with fewer upsets. Better blending and proportioning is achievable. Ultimately, higher levels of process information and control enhance attainment of continual improvement in product quality and quality control objectives.