

## **Particle Size Analyses by Laser Diffraction Spectrometry: Application of ISA Mill ultra Fine Grinding Technology**

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The Caribou underground mine, 50 km west of Bathurst, the Restigouche open-pit mine, another 30 km west and the concentrator located at the Caribou mine site resumed operations in July 2007 after a nine year shutdown. The Caribou operations achieved commercial production on Jan 1. By June, 2008, all metallurgical targets had been achieved or surpassed with the production of lead and zinc concentrates assaying approximately 50% Zn and 45% Pb respectively with recoveries exceeding 80% for Zn and 70% for Pb.

The deposit features very fine-grained massive sulphide mineralization, which in the past has proven difficult to process. ISA Mill Ultra Fine Grinding Technology in combination with conventional flotation technology is used to process these complex ores

The importance of particle size analysis in the mineral processing is fundamental. Crushing, grinding and milling processes release of valuable material (usually metal) from the ore. This process involves (energy consumption, efficiency, slimes formation, etc.)

This paper describes the application of Laser Diffraction Spectroscopy in Mineral processing for particles size with K80s ranging from 35um to 8um.

Different technology to measure particle size will be discussed, including the validation of the Laser Diffraction Spectrometer using 6 sigma methodologies.