# Online Gold Analysis Using X-ray Fluorescence

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## ABSTRACT

Accurate real-time elemental analysis is one of the most important online measurements to enable efficient flotation circuit control and to achieve optimal metal recovery. In base metals concentrators, online elemental analyzers have been utilized for process control since the 1960s, resulting in high process performance.

In gold concentrators, valuable metal content in most process streams is typically so low that direct measurement of gold has been possible only for concentrate streams. Traditionally gold content in flotation feed has been estimated according to direct measurement of elements such as, for example, iron, copper and arsenic.

These indirect measurement models have proven useful in some applications while providing reliable estimate for real-time gold content. However, there are many applications where indirect measurement models are not feasible due to changes in ore properties or due to the presence of free gold that can't be estimated according to other elements.

This paper presents results of direct gold measurement using an online XRF elemental analyzer which has been optimized for measurement of precious metals.

KEYWORDS: Gold, Precious Metals, Online Analysis, Flotation Control