

PROCESS MINERALOGY

SGS ADVANCED MINERALOGY NETWORK

For over fifty years, SGS has provided mineralogical support to thousands of extractive metallurgy projects and contributed to the development of hundreds of new mines. Then, our mineralogists had only optical microscopes, but now, with an unsurpassed array of state-of-the-art equipment, our professional mineralogists provide top notch quantitative assessments of mineral deportment and liberation to help maximise grade and recovery or increase operational efficiency.

In the early days, our mineralogists used optical microscopes, but now, our staff of over 30 mineralogists, technicians and technologists has an extensive array of state-of-the-art equipment and technologies to complement their wide ranging expertise.

Although we still have microscopes in our laboratories, each of our Advanced Mineralogy Facilities is well equipped with automated, state-of-the-art technologies. Our international framework of expertise, coupled with our extensive equipment base on each continent means that we are the world's leading provider of mineralogical services – in fact, we provide High Definition Mineralogy.

TYPICAL OBJECTIVES OF PROCESS MINERALOGY STUDIES

Process mineralogy focuses on the relationships between ore and gangue minerals. The data generated from such studies characterizes mineralogy and texture to optimize recovery and selectivity. For instance, we can: determine the Department of valuable elements (e.g. define the distribution of copper among various minerals in a sample) or the balance of gold in free milling or refractory habits.

- Presence of favorable mineral species
- (e.g. acid-consuming carbonates)
- Distribution of various ore domains throughout an orebody
- Mechanisms to upgrade concentrate quality (e.g. documenting floatable gangue minerals like talc)
- Occurrence of deleterious mineral phases
- (e.g. small grains of As, Pb, Se)



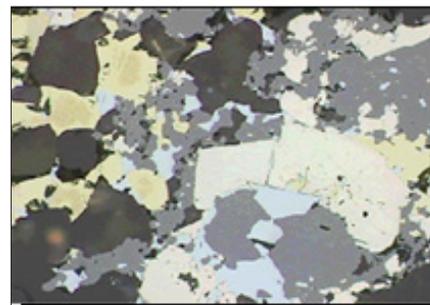
Flotation concentrate quality is directly related to grind size, grain size and textural complexity.

Understand the influence of physical ore characteristics on metallurgical grade and recovery by quantifying

- The particle size distribution of target minerals
- The textural associations of ore minerals with gangue
- Grade-recovery curves for various species

Clarify reasons for poor or unexpected ore mineral recovery and grade performance by reviewing

- The degree of liberation of target minerals in feed and products
- The deportment of valuable minerals in tailings streams
- The deportment of gangue minerals in concentrates



Ores with coarse and fine-grained intergrowths of pyrite, chalcocopyrite and sphalerite will pose difficulties during flotation.

CONTACT INFORMATION

Email us at minerals@sgs.com
www.sgs.com/mining