

**GOLD: MINERALOGY AND METAL EXTRACTION**

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Mineralogical studies, if appropriately and compatibly carried out with metallurgical test work, may provide a conclusive means of understanding gold losses and recovery. They furnish exegesis for test work failures through the identification of the gold minerals and the ascertainment of the gold distribution in the ore or metallurgical product. The information supplied by the mineralogical studies is such that it can be regarded as the first step towards the development of right extraction techniques for those ores where the test work alone failed to bring out definite results. Factors influencing the extraction of gold are:

- (i) the mineral in which the gold is concentrated,
- (ii) its grain size and, when dealing with very fine size (10  $\mu\text{m}$  and less),
- (iii) the host minerals and the association it forms with gold-bearing minerals.

Knowledge of such pertinent variable yield elucidation for good and bad recoveries.

This paper describes the mineralogical techniques for the study of gold ores and metallurgical products and presents the gold mineralogy in relation to its metallurgy. An effective method of studying difficult gold ores (refractory types), combining gold extraction test work, assaying and mineralogical examination and capable of providing affirmative results over comparatively small period of time is insinuated. Current practices and potential new technologies for the treatment of refractory ores are discussed.

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