

A Method for Rapid Evaluation of Ore Breakage Parameters from Core Images

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Abstract : With the recent advancement in core imaging systems, a large volume of high resolution drill core images can now be collected rapidly. This paper presents a method for rapid prediction of ore-specific breakage parameters from high resolution mineral classified core images. The aim is to allow for a rapid assessment of the variability in ore hardness within a mineral deposit with reduced amount of physical breakage tests. This method sees its application primarily in project evaluation phase, where proper evaluation of the variability in ore hardness of the orebody normally requires prolong and costly metallurgical test work program. Applying this image-based texture analysis method on mineral classified core images, the ores are classified according to their textural characteristics. A small number of physical tests are performed to produce a dataset used for developing the relationship between texture classes and measured ore hardness. The paper also presents a case study in which this method has been applied on core samples from a copper porphyry deposit to predict the ore-specific breakage A^*b parameter, obtained from JKRBT tests.

Keywords : geometallurgy, hyperspectral drill core imaging, process simulation, texture analysis

Conference Title : ICMMPME 2017 : International Conference on Mining, Mineral Processing and Metallurgical Engineering

Conference Location : Venice, Italy

Conference Dates : November 13-14, 2017