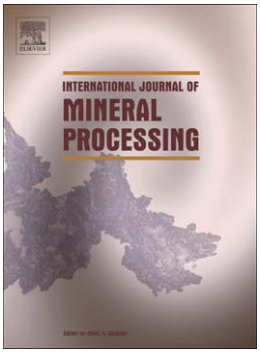

A review of the applications of the JK size-dependent breakage model

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A review of the applications of the JK size-dependent breakage model Part 1: Ore and coal breakage characterisation

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ABSTRACT

It has been 10 years since the JK size-dependent breakage model was developed (Shi and Kojovic, 2007). This paper reviews 20 applications of the model for the mineral and coal industries in the past 10 years to encourage its use in future applications. The review is divided into three parts: Part 1 for ore and coal breakage characterisation, Part 2 for assessment of material strength and energy requirement for size reduction, and Part 3 for modelling comminution equipment.

Part 1 of the review covers the model structure, its applications in high energy single impact data reduction, low energy incremental breakage modelling, reduced breakage testing method, a new impact breakage testing method using mixed particles in a wide size range, fine particle breakage characterisation (JKFBC), and a multi-component breakage model for coal grinding. It has been proved through these applications that the JK size-dependent breakage model is a useful tool for ore and coal breakage characterisation.

Keywords: Breakage characterisation; Size effect; Modelling; Energy efficiency.