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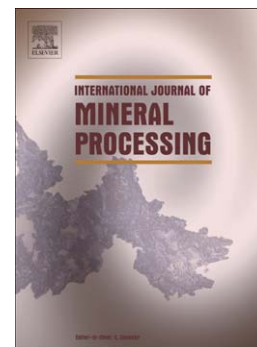
An investigation into the relative role of particle size, particle shape and froth behaviour on the entrainment of chromite

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## **An investigation into the relative role of particle size, particle shape and froth behaviour on the entrainment of chromite**

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### **ABSTRACT**

It is well known that entrainment is strongly affected by particle size. It has, however, recently been shown that particle shape also has a significant effect on entrainment. The effect of shape of particles on entrainment after comminution may be influenced by the competency of the ore and the comminution procedure used since different breakage mechanisms will result in particles of different shapes. In the recovery of platinum group minerals (PGMs) the need to reduce the amount of chromite in the concentrate is of great importance and it is known that chromite reports to the concentrate through entrainment. The present paper reports on the entrainment of chromite of different particle sizes and relates these results to the shape of chromite particles by comparison with the entrainment of spherical ballotini particles and high aspect ratio wollastonite particles of similar sizes. Mixtures of chromite and ballotini were also studied and these results highlighted the critical role which such mixtures have on the behaviour of the froth. The relative effect of drag forces which can explain entrainment of particles of different shapes and the effect of settling velocity which is affected by particle mass and shape is discussed.

**KEYWORDS:** Particle shape, particle size, froth, entrainment, chromite

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