

Theory and Applications of the Jameson Cell

Graeme J. Jameson

*Centre for Multiphase Processes, University of Newcastle,
University Drive, Callaghan, NSW 2308, Australia*

Abstract

The Jameson Cell is a new form of flotation machine whose principles of operation are rather different to existing technologies. The feed plunges down a downcomer in the form of a jet. Air is drawn in from the atmosphere, and forms a dense froth with the feed in the downcomer. The plunging jet creates a very favourable environment for the creation of very small bubbles, and for bringing them into contact with the particles in the feed. Thus high recoveries can be achieved with very small residence times, of the order of 10 seconds in the downcomer.

The cell was introduced commercially in 1989, following an extensive period of plant trials. A brief history of the discovery and development of the machine will be given, together with a description of the theoretical principles on which it is based. Several examples of large-scale applications, in coal, minerals, SX-EW and water treatment, will be presented.