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Audit Industrial Thickeners with New On-line Instrumentation

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ABSTRACT

A theory of sedimentation-consolidation evolved in the last decades of the 20th century and is accepted today by researchers worldwide. This theory provides a reliable method of thickener design, simulation and control. However, a process model, simple or sophisticated, empirical or phenomenological, is useful only if it is possible to determine, in an objective way, its experimental parameters. Although it is important for a mineral processing plant to perform periodical laboratory test to determine thickening parameters, and adjust the operation in this way, laboratory tests not always represent the behavior of the material in a thickener. Research workers at the University of Concepción developed new instrumentation, algorithms and software to determine the material properties of the thickener feed, such as settling velocity of the suspension and the compressibility of the sediment produced. Work was made in a major Chilean copper mineral processing plant to test the new instrumentation. In this paper, the auditing of one molybdenum thickener and a tailings thickener are presented using the two new online instrument.

Key words: Thickening; Laboratory Instrumentation; On-line Instrumentation; Sedimentation; Consolidation.

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