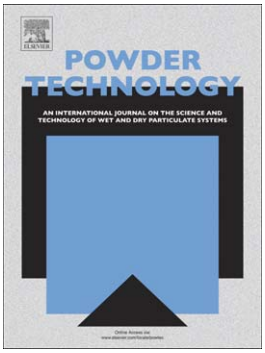

Audit Industrial Thickeners with New On-line Instrumentation

Fernando Concha, Juan Pablo Segovia, Samuel Vergara, Alonso Pereira, Edgardo Elorza, Patricion Leonelli, Fernando Betancourt

PII: S0032-5910(17)30257-7
DOI: doi:10.1016/j.powtec.2017.03.040
Reference: PTEC 12445

To appear in: *Powder Technology*

Received date: 9 June 2016
Revised date: 13 March 2017
Accepted date: 15 March 2017

Please cite this article as: Fernando Concha, Juan Pablo Segovia, Samuel Vergara, Alonso Pereira, Edgardo Elorza, Patricion Leonelli, Fernando Betancourt, Audit Industrial Thickeners with New On-line Instrumentation, *Powder Technology* (2017), doi:10.1016/j.powtec.2017.03.040

Audit Industrial Thickeners with New On-line Instrumentation

Fernando. Concha[a], Juan Pablo Segovia[b], Samuel Vergara[b], Alonso Pereira[a], Edgardo Elorza[c]. PatricionLeonelli[c], Fernando Betancourt[c]

[a]Water Research Center for Agriculture and Mining, University of Concepción Concepción, Chile. Corresponding author.

[b]Department of Electrical Engineering, University of Concepción, Chile.

[c]Department of Metallurgicall Engineering, University of Concepción, Chile.

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.