

Title (en)

METHOD AND APPARATUS FOR CONTROLLING FROTH FLOTATION MACHINES

Title (de)

VERFAHREN UND VORRICHTUNG ZUM KONTROLLIEREN VON SCHAUMFLOTATION-MASCHINEN

Title (fr)

PROCEDE ET APPAREIL DE COMMANDE DE MACHINES DE FLOTTATION

Publication

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Application

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Abstract (en)

[origin: WO9745203A1] Computerized, "intelligent" system (110) and methods for monitoring, diagnosing, operating, and controlling various parameters and processes of flotation machines (40) are presented. The computer control system actuates at least one of a plurality of control devices (48) based on input from one or more monitoring sensors (42, 44) so as to provide real-time, continuous, operational control. The response of the control system is based on the system's own process model which in turn is based on sensor input and one or more advanced analysis techniques including but not limited to neural networks, genetic algorithms, fuzzy logic, expert systems, statistical analysis, signal processing, pattern recognition, categorical analysis, and combinations thereof. Process and operating parameters of particular interest include rate and amount of chemical reagent addition, froth thickness, power consumption and aeration rate. In a particularly preferred embodiment, the apparatus comprises a froth flotation machine with at least one video sensor (46) providing input which is analyzed by a process model generated by a combination of statistical methods and neural networks. As a result of the analysis, at least one output may be generated to activate a control device (48) that effects changes in operating variables as suggested by the process model. In another particularly preferred embodiment, the apparatus comprises a froth flotation machine with at least one laser spectrometer (114) providing input with respect to elemental composition of the input (feed) and of the output (effluent) streams.

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