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Scale-up of Basket Filtration Centrifuges and a Review of the Principles of Basket Centrifugation

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Basket centrifuges are employed extensively in the chemical industry for various types of solid / liquid filtrations. The type of basket centrifuge to be selected for industrial service is dependent on the specific characteristics of the solid / liquid system. Every solid / liquid system has its own properties. In order to predict performance, testing must be conducted with laboratory or pilot scale equipment. Pilot scale basket centrifuges can be used to accurately predict the cycle parameters. Parameters such as particle size, liquid viscosity, cake compressibility, and wash liquor ratio are such examples. Darcy's Law will be reviewed in this presentation.

There are two approaches to scale-up of a basket filtration centrifuge; scale-up by filtration area and scale-up by volume. The determination of which method to be employed will be reviewed. In this presentation, we will review the specific steps of a basket filtration cycle and their impact on equipment performance.

WHY CHOOSE CENTRIFUGAL FILTRATION? Centrifugal filtration presents advantages over sedimentation especially if the solids are a valuable product. Plug flow washing is ensured due to the fact that the wash liquid passes completely through the solids. Centrifugal filtration presents advantages over static filtration methods due to the large driving force for filtration generated by centrifugal force of the rotating basket.

Bio

Rob Driscoll is an application engineer at Robatel Inc. whose responsibilities include equipment specifications, start-up, and optimization. Rob has been with Robatel Inc. for 12 years, and has a BSChE from Michigan State University.