Optimizing Alumina Production Utilising Spreadsheet Models Based on Limited Data

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Abstract

Computer models to predict heat & mass balances have been used to optimize production in Alumina refineries since modern data processing capabilities have allowed it. But for refineries that have poor or no experimental data or knowledge, a major roadblock is that published models are usually dated and as a result, have more uncertainty in the predictions for their processes. This is particularly true for the precipitation area where the model development requires considerable effort, while the best and newest published models do not always disclose the parameters of the equations to protect IP. However, there is an approach that enables casting older models into newer equation types using little or no experimental data. This kind of model is not accurate enough for rigorous flowsheet models such as SysCAD or Aspen, but are accurate enough to provide optimization using spreadsheets and the Excel Solver Add-in.