Systematic methodology and property prediction of fatty systems for process design/analysis in the oil and fat industry - DTU Orbit (14/12/2018)

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A systematic model based methodology has been developed and its application highlighted through the solvent recovery section of a soybean oil extraction process, with emphasis on the effect of design variables on the process performance. First, the most representative compounds present in the vegetable oil were defined. Basic and critical properties were then computed by means of appropriate property prediction software. Temperature dependant properties were modeled using and extending available correlations. The process model was developed through the PRO II commercial simulator and validated by matching the steady state simulation results with available plant data. The validated process model was then used to optimize the performance of the process by manipulating a selected set of design variables. The optimization results indicated that the process was already within the optimum zone; however, improvements in the amount of the hexane recovered were possible.

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