

عنوان مقاله:

OPTIMIZATION FOR EXTRACTING BUTYRIC ACID FROM AQUEOUS SOLUTION

محل انتشار:

دوازدهمین کنفرانس بین المللی چالشهای نوین در مهندسی صنایع و مدیریت عملیات (سال: 1397)

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خلاصه مقاله:

Goal Programming, one of the most suitable kinds of programming in detecting the most optimum solution between the purpose, answers the solution of the problem is occurred in lots of sector such as chemical, civil, machine, tourism and etc. In this study, an extraction process is observed and due to an output of the reaction, a non-linear multiobjective programming is created. Dealing with a subject such as extracting acids from water solution possesses financial, toxic and physical optimization. Butyric acid is one kind of this acids, which is also one of the most useable carbonic acids. In a continuous fermentation process to make optimal production is only capable of making butyric acid obtaining as a product extracting from water solution. The liquid-liquid equilibrium data for water butyric acid solvent (octanol, ethyl butyrate, ethyl valerate, ethyl nonanoate, acetophenone and diethyl malonate) ternary systems were determined experimentally at 298.15°K. Adsorption experiments are done with an ion exchanger in different adsorption concentrations. Dispersion coefficients of butyric acid between aqueous and organic phases, separation factors and selectivities calculated and the data obtained from the experiment is put on the programming part to find an optimal solution for our goals and decision variables. In the way of making extraction optimal is used as an extractant in which involves tributyl phosphate amine is studied and calculated for organic phases, separation factors and selectivities. Usage of amine is also another constraint for our study cause of the toxicity

کلمات کلیدی:

Linear Regression Models, Multi-Objective Programming, Non-Linear Optimization, Butyric Acid Extraction, Process Optimization

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