

عنوان مقاله:

Kinetics of Lactose Crystallization; Effect of Seeding, Initial Concentration & Temperature on Overall Lactose Crystallization Rate

محل انتشار:

ششمین کنگره بین المللی مهندسی شیمی (سال: 1388)

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خلاصه مقاله:

Whey is a byproduct of cheese factories containing protein, lactose, fat, minerals and vitamin. More than 80% of total solids of whey is lactose. High quantities of whey produced by factories are considered as factory sewage causing environmental contamination due to its high BOD. Lactose is a byproduct of whey and is beneficial in food and pharmaceutical industries. First whey protein is separated by acidification process and coagulation method in a pH range of 4.4-4.8. Minerals and color are then separated adding EDTA and carbon active, respectively. To crystallize lactose, it is concentrated by vacuum evaporator at 70°C and cooled for crystal formation. The effects of factors such as seeding, initial concentration & cooling rate on crystallization kinetics and yield is surveyed and the crystallization process is modeled with the first order reaction. The overall crystallization rate constant (k) is obtained in range of 0.10-0.17.

کلمات کلیدی:

whey, lactose, crystallization, kinetics modeling

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