

分离工程

盐析结晶法分离铬酸钾

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摘要 关联了不同温度下K₂CrO₄在K₂CrO₄-KOH-H₂O体系中的溶解度数据,分析了从K₂CrO₄-KOH-H₂O体系中通过盐析结晶方式分离K₂CrO₄的可能性;通过K₂CrO₄-KOH-H₂O体系中K₂CrO₄的盐析结晶实验,得出了初级成核现象发生时,体系的最大过饱和度与过饱和速率之间的动力学关系式及结晶过程中盐析剂浓度、盐析结晶终点K₂CrO₄收率、溶液体积等工艺参数间的关系,探讨了以KOH作为盐析剂,采用盐析结晶方法从K₂CrO₄-KOH-H₂O体系中分离提纯K₂CrO₄的可行性,为K₂CrO₄的高效分离提供了一种新思路。

关键词 [铬酸钾](#); [溶解度](#); [过饱和速率](#); [盐析结晶](#); [清洁工艺](#)

分类号

Separation of potassium chromate by salting-out crystallization

Abstract

The green manufacturing process for chromium compounds, which was proposed by the Institute of Process Engineering, Chinese Academy of Sciences, has spawned a lot of interests in the chromate production industry all over the world. The separation of the intermediate product K₂CrO₄ is one of the bottleneck units in the green manufacturing process. This work is to seek a new approach to the separation of K₂CrO₄. The solubility data of K₂CrO₄ in the K₂CrO₄-KOH-H₂O system were regressed and processed. The possibility of separating K₂CrO₄ from the K₂CrO₄-KOH-H₂O system through salting-out crystallization with a salting-out reagent was investigated. The kinetic relationship between the maximum supersaturation and supersaturation rate during nucleation was obtained. The relationship among the concentration of the salting-out reagent, the recovery efficiency of K₂CrO₄ and the solution volume of the final system was also obtained. The feasibility of the separation of K₂CrO₄ from the K₂CrO₄-KOH-H₂O system through salting-out crystallization with KOH as the salting-out reagent was explored. This method provides a promising approach to the highly efficient separation of K₂CrO₄.

Key words [potassium chromate](#) [solubility](#) [supersaturation rate](#) [salting-out crystallization](#) [green manufacturing process](#)

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