

# 《膜接触器和集成膜操作》

## 图书基本信息

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## 内容概要

本书几乎包含膜科学与工程所有方面的内容：从基本现象到最前沿的应用，以及未来的前景。现代膜工程是工艺强化策略的关键环节，可以大大促进工业的增长。本书是研究人员以及行业管理人员的必备工具。

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作者简介

无

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### 章节摘录

版权页：插图： Carrageenan is produced from different genera and species of red algae, for example, *Chondrus crispus*, *Eucheuma*, and *Gigartina stellata*. This results in specific types of carrageenan, which are blended to obtain a uniform product. The seaweed is typically harvested by ranking and then dried before being shipped to a processing plant, where the seaweed is cleaned by water and hammer-milled to expose the inner surface of the seaweed prior to extraction. During the initial extraction step, the carrageenan is dissolved in 70-75 °C hot water containing alkaline reagents such as calcium and sodium hydroxide. The resulting paste is then stored for 2-24h in holding tanks at 90-95 °C and finally mixed with filter aids such as diatomite or expanded perlite. By using a filter press for clarification, the hydrocolloids are removed from the soluble impurities, which results in a pale syrupy liquid containing 0.8-1.0% of carrageenan. The carrageenan is then pH-adjusted and concentrated by UF at approximately 90 °C. At this high temperature, carrageenan concentrations of up to 3-5% can be achieved. Which is equivalent to 3-5 times volume reduction. In addition, salts, color, sugar, and other low-molecular-weight components (LMWCs) are removed from carrageenan with the permeate leading to high purities. The energy consumption of UF is 20-30 kWh/m<sup>3</sup> lower than for evaporation requiring for the same duty 30-50 kWh/m<sup>3</sup>. The subsequent steps in the carrageenan production depend on the desired final product. The carrageenan can be either directly dried in a drum or roll-drier or be further purified by precipitation in either water or alcohol followed by pressing and drying before blending.

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## 编辑推荐

《膜接触器和集成膜操作(导读版)》展示和讨论了近年来膜科学与工程方面取得的一些最具重大作用的成果。着重于膜技术在能源、环境、生物医学、生物技术、化学制造等领域的应用。《膜接触器和集成膜操作(导读版)》适合材料、化学化工、环境等领域的师生、科研人员阅读参考。

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