

减压膜蒸馏法处理石煤提钒废水

Vacuum membrane distillation treatment of wastewater produced in vanadium extraction from stone coal

投稿时间: 2011-10-12 最后修改时间: 2011-11-22

DOI:

中文关键词: [减压膜蒸馏](#) [废水](#) [石煤提钒](#) [热效率](#) [浓缩](#)

英文关键词: [vacuum membrane distillation](#) [wastewater](#) [vanadium extraction from stone coal](#) [thermal efficiency](#) [concentration](#)

基金项目: "十二五"国家科技支撑计划重点项目(2011BAB05B00)

作者 单位

[黄伟](#) 1. [武汉理工大学资源与环境工程学院, 武汉 430070](#)

[张一敏](#) 1. [武汉理工大学资源与环境工程学院, 武汉 430070](#); 2. [矿物资源加工与环境湖北省重点实验室, 武汉 430070](#)

[包申旭](#) 1. [武汉理工大学资源与环境工程学院, 武汉 430070](#); 2. [矿物资源加工与环境湖北省重点实验室, 武汉 430070](#)

摘要点击次数: 100

全文下载次数: 124

中文摘要:

利用减压膜蒸馏设备处理石煤提钒废水,分别比较了废水经预处理前后,料液温度、流量、渗透侧真空度等操作条件对膜通量和截留率的影响。测定了不同浓缩倍数情况下膜通量的变化。实验表明,进料温度升高会使膜通量增加,温度为65℃时,热效率最高为70.1%。提高料液流量或真空度都会使膜通量增加。废水经VMD处理产生的淡水电导率均在10 μS/cm以下,脱盐率可达99.98%以上。在温度为70℃、流量为60 L/h、真空度为0.095 MPa时,石煤提钒废水经预处理后的废水膜通量为11.359 kg/(m²·h),浓缩10倍时,膜通量仍有3.185 kg/(m²·h)。

英文摘要:

The wastewater produced in vanadium extraction from stone coal was desalinated by vacuum membrane distillation. The operation conditions such as the feed temperature, flow rate and vacuum of osmosis side which influence the flux and rejection rate were investigated before and after pretreatment, respectively. The variation of membrane flux under different concentration factors was also investigated. The results showed that, membrane flux increased with the increase of feed temperature. At 65℃, the thermal efficiency can reach the maximum of 70.1%. High feed flux and low permeate pressure allowed high membrane flux to be obtained. During the desalination processing, the conductivity of the dilute was less than 10 μS/cm and the salt rejection rate was up to 99.98%. The flux of the dilute can reach 11.359 kg/(m²·h) when the temperature was 70℃, flow rate was 60 L/h and vacuum of osmosis side was 0.095 MPa during desalinating the wastewater after pretreatment. When the wastewater was concentrated by 10 times, the membrane flux also can arrive in 3.185 kg/(m²·h).

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

关闭

你是第556684位访问者

主办单位: 中国科学院生态环境研究中心 单位地址: 北京市海淀区双清路18号 邮编: 100085

编辑部服务热线: 010-62941074 传真: 010-62941074 邮箱: cjee@rcees.ac.cn

技术支持: 北京勤云科技发展有限公司

