核化学与放射化学 2008 30 (3): 142-145 ISSN: 0253-9950 CN: 11-2045/TL

研究报告

模拟放射性废水的超滤+反渗透处理工艺

熊忠华[1,2];范显华[2];罗德礼[1];王拓[1];陈琦[1]

1.中国工程物理研究院,绵阳 621900 2.中国原子能科学研究院,北京 102413

收稿日期 2007-5-21 修回日期 2007-12-3 网络版发布日期: 2008-8-6

摘要 研究了超滤+反渗透（UF+RO）新工艺在含钚低水平放射性废水处理中的应用，膜分离系统采用中空纤维式超滤和卷式反渗透联合组件。实验探索了不同工艺参数对废水处理的去污效率和体积减容倍数的影响，结果表明，作为新型膜分离系统，在料液pH=10时其去污效率达到99.94%，体积减容倍数达到12.5，为放射性废水的体积最小化提供了新的处理工艺。

关键词 低水平放射性废水；超滤；反渗透；膜分离

分类号 TL941.19

Treatment of Simulated Plutonium-Containing Wastewater by Ultrafiltration-Reverse Osmosis Technology

XIONG Zhong-hua[1,2]; FAN Xian-hua[2]; LUO De-li[1]; WANG Tuo[1]; CHEN Qi[1]

1. China Academy of Engineering Physics, Mianyang 621900, China;
2. China Institute of Atomic Energy, Beijing 102413, China

Abstract Ultrafiltration and reverse osmosis were employed for the treatment of low level radioactive water containing plutonium. The system consists of ultrafiltration module with hollow fibre membrane and reverse osmosis module with spiral membrane. The decontamination efficiency and volume concentration ratio affected by technical parameters were explored in the experiment. The results show that the decontamination efficiency achieves 99.94% and the volume concentration ratio achieves 12.5 at pH=10 for solution fed into the membrane separation system. This technology will be applied in radioactive waste minimization as a new treatment method.

Key words low level radioactive wastewater ultrafiltration reverse osmosis membrane separation

DOI

通讯作者 熊忠华[1,2]