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Maximizing Filtration Efficiency for Gadolinium Sulfate Retention in Water-Based Liquids Scintillators

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In this study, we used a state of the art filtration machine to refine the filtration process for water-based liquids scintillators (WBLS). Our primary objective was to optimize the retention of gadolinium sulfate while concurrently eliminating optical contaminants. Through meticulous experimentation, we determined the precise filter size crucial for preserving the integrity of gadolinium sulfate within the WBLS.

Encouraged by these promising results, we extended our investigation to a larger scale, employing a robust 30-ton filtration machine. This expansion aims to validate and replicate the success achieved with the smaller scale apparatus. Preliminary findings suggest that the filtration efficiency demonstrated in the original setup can be successfully scaled up, opening avenues for large scale experimental setups.

This breakthrough not only ensures the reliable retention of the target substance but also elevates the purity of WBLS by effectively removing micellar contaminants. Our research contributes not only to the advancement of filtration technology but also holds significant implications for experiments that wish to use WBLS.

Early Career

No

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