

## Radiolysis effects on TALSPEAK chemistry\*

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### Abstract

*Solvent extraction processes employed in the treatment of used nuclear fuels are subjected to radiation doses that can be on the order of  $\text{kGy h}^{-1}$ . These intense fields inevitably interfere with the process as designed, with the overall effect manifesting itself as changes in the observed extraction or recovery efficiencies. The reduced performance is generally as a result of either direct radiolysis of the separations reagents or reaction with transient species generated from the radiolysis of the diluents. As such there are many facets to understanding the radiation chemistry of new separations processes, such as TALSPEAK, for the partitioning of the minor actinides from the lanthanides before process scale deployment could occur. This paper will discuss the current work at Idaho National Laboratory regarding the radiation chemistry effects on the components of the TALSPEAK process.*

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\* The full paper being unavailable at the time of publication, only the abstract is included.