

Method of Separating Elements Using Solid Electrolytes

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Technology Summary

A method for separating two or more elements from each other is provided. The method includes the use of solid electrolyte materials to selectively conduct targeted species away from other non-conductive species. The separation method makes use of the selective nature of superionic conduction through solid materials. Separations that this method may be applied to include, but are not limited to, those required in producing purified rare-earth and actinide elements for use in industries such as nuclear energy, electronics, and medicine. Many separation schemes of various complexities and production scales are possible using this method. Benefits of this method include decreased waste complexity due to the primary use of radiation resistant inorganic materials, efficiency due to highly selective separation mechanism, ability to be tailored to specific separation problems, as well as ability to scale as the particular application requires.

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