Method for the Purification of Complex Rare Earth Element MixturesÐ
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Track Code: 2020-WANG-68877

Categories:
- Chemical Engineering

Keywords:
- Electronics
- Ligands
- Rare Earth Elements
- rare earth metals
- Recycling
- Separation

Researchers at Purdue University have developed new techniques to recover rare earth elements. Rare earth elements (REEs) are a series of elements in the periodic table with properties that make them useful in electronic and magnetic devices. Recovery of REEs is important because pure REEs are produced only in a few countries and regions around the world. Current methods for purification of REEs involve liquid-liquid extraction, which creates toxic waste. The Purdue researchers have developed an efficient, economical, and environmentally friendly ligand-assisted chromatography methods to produce high-purity REEs. This method involves multiple zones to produce high-purity REEs from complex mixtures. It is a low cost as well as domestic REE production method that generates nearly zero waste.

Advantages:
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-”Æðw cost
-• &ðvides domestic production of rare earth elements

Applications
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Technology Validation: In a bastnasite mixture with six rare earth elements, high yield, high purity (>99%) Ce, La, Nd, and Pr were recovered using the researchers’ method. More than 95% of the chemicals used in the process can be recovered and reused.

People:

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Intellectual Property:

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