

Electrokinetic Mining

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About Electrokinetic Mining:

- It is a novel technique which uses **Electrokinetic** i.e the application of a direct or alternating **electric field to accelerate the migration** of movable species, such as metals, water, and particles.
- **Issue with present technique:**
 - Currently, heavy rare earth elements (HREE) are dominantly mined from **ion-adsorption rare earth deposits** (IADs) discovered in South China, and the regional mining produces and supports 95% of the global demand of HREEs.
 - However, the conventional mining applies excessive **usage of ammonium-salt-based leaching agents** to recover HREEs from IADs, such technique exhibits low efficiency and devastating environmental impact on the local eco-system.
- **Advantages of Electrokinetic Mining**
 - It reduces leaching agent usage by 80%, and energy consumption by 60%.
 - **High recovery rate:** Its recovery rate exceeds 95% which marks a breakthrough in sustainable mining.
 - It can simultaneously help reduce the environmental impacts and improve the recovery rate of REEs.

Q1: What is electrolysis mining?

Electrolysis uses a direct electric current to create a chemical reaction. This process is used to produce pure copper metal in the final stage of copper extraction from ores after being removed from the ground.

Source: STD

Source: <https://vajiramandravi.com/current-affairs/electrokinetic-mining/>

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