

FeCycle™

A process for preparing ferric chloride for a water treatment process for producing potable water

“Converting Pollution into Purity.”

Technology

This technology offers an innovative and eco-friendly method for producing ferric chloride (FeCl_3), a commonly used coagulant in water purification, by recovering Fe(III) from acid mine drainage (AMD). AMD is a significant pollutant generated by mining activities and typically contains high levels of iron and other contaminants. The invention allows for converting AMD from an environmental hazard into a valuable resource for water treatment by producing ferric chloride through a controlled chemical process. This process involves extracting and converting Fe(III) under optimised pH conditions to produce a coagulant that meets water treatment standards. This approach provides an alternative, local, and sustainable source of ferric chloride, which is particularly important for regions experiencing supply chain disruptions and increasing chemical treatment costs.

Market need

This technology, by converting locally abundant acid mine drainage (AMD) into a usable chemical input, directly addresses the urgent need for cost-effective coagulant alternatives, promotes sustainable and circular resource use, and improves access to potable water in underserved and resource-limited regions. The technology produces FeCl_3 , which is a chemical used in the treatment of water.



Features

- Transforms hazardous waste into a chemical input via iron precipitation and conversion processes.
- Produces a widely used coagulant for water treatment directly from recovered iron sources.
- Minimises the environmental impact of mining waste while avoiding imported hazardous chemicals.



Benefits

- Converts mining waste into a valuable water treatment resource, reducing environmental liabilities
- Offers municipalities and industries a low-cost, locally sourced alternative to expensive imported coagulants
- Decreases AMD contamination risks and avoids the carbon costs of chemical transportation and manufacturing.



Industry

Water

Potential applications

- Production of ferric chloride for municipal and industrial water treatment
- Environmental remediation of acid mine drainage
- Integration into circular economy systems in mining and water sectors
- Sustainable sourcing of coagulants for potable water and wastewater processes

Creators

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Stage of development

Early stage

Intellectual property

Patent Protection

Desired relationship

Co-development partner, Investors