

Description of the result

Three key studies were conducted for Project ReSoURCE. A technoeconomic assessment (TEA) and life cycle assessment (LCA) were conducted to quantify the economic and environmental improvements from implementing ReSoURCE's automated sorting process compared to the established manual sorting process. Additionally, a conceptual design study was completed where a commercial-scale refractory automated recycling facility was developed, incorporating an increased throughput.



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LCAs & TEAs in sustainable
process design



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Problem addressed

Refractory bricks are commonly sorted manually across the industry. However, this has many limitations as well as having low sorting accuracy. The TEA and LCA analysed the economic and environmental impacts of moving to ReSoURCE's automated sorting system. The concept study on the other hand, evaluated the throughput capabilities and optimisation opportunities to assess the feasibility of a commercial-scale ReSoURCE process.

Contact & Further Information

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Main features & benefits

The TEA showed that the automated sorting process could increase the value added per tonne of material as well as significantly increase the total facility revenue generated by unlocking capacity and increasing recovery and valorisation. The LCA showed that the automated system reduces environmental impacts and identified environmental “hotspots” within the process for future improvement. The concept design study enabled the identification of potential process bottlenecks, defined optimisation strategies and assessed the benefits and challenges of onsite and offsite sorting.



Prospects for the future

The results from the three studies will help guide the future decision making by RHIM.



Who Is Leading the Development?





Environmental Benefits

Initially, these studies will be utilised by RHI Magnesita. However, they will be of further interest to the Refractory industry.



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