

ReElement Technologies' Kentucky Lithium Plant Expands to Produce Separated Rare Earth Oxides from Mine and Coal Waste

ReElement establishes an economically viable process to produce ultra-pure rare earth elements and valuable byproducts from coal and other mining waste

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Mark Jensen

Corporation ("ReElement"), a leading provider of high-performance refining capacity of rare earth and critical battery elements, announced the expanded initiative at its Kentucky Lithium refinery to enable production of ultra-pure rare earth oxides and other byproducts from coal tailings and other types of mine waste in addition to battery-grade lithium products from spodumene-bearing ores.

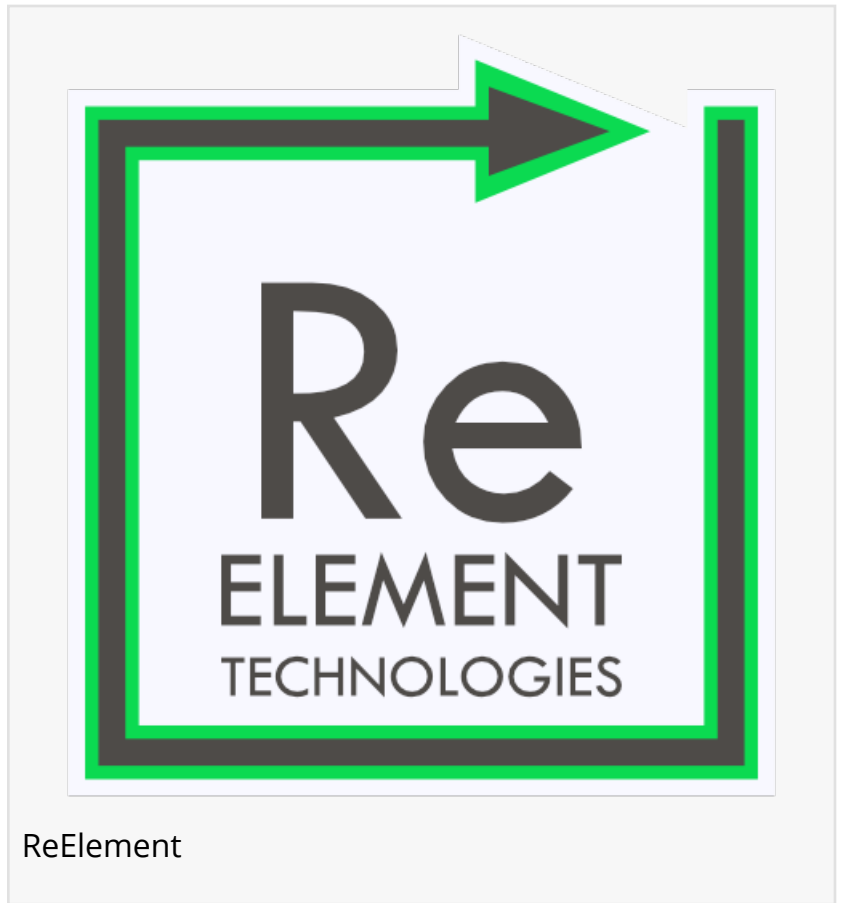
ReElement Technologies previously announced the closing of \$150 million in financing for its Kentucky-based refinery, initially focused on processing lithium from domestic and international suppliers into battery-grade lithium. Today, the company has expanded its focus, leveraging flow sheet efficiencies and feedstock development to economically process and refine coal mine waste containing high-value rare earth elements critical for defense, advanced technologies and magnet manufacturing.

[American Resources](#) Corporation, ReElement's former parent company and current development partner, will utilize its process flow expertise to maximize synergies with ReElement to supply an optimal rare earth concentrated feedstock, initially sourced from its property in Oceana, West Virginia. Previously reported data shows that the Oceana site's pre-concentration contains over 550 ppm of rare earth elements and high levels of aluminum and silicon suitable for the semiconductor and battery industries.

Additionally, American Resources plans to expand operations to other controlled regional sites and partner with industry players to provide economically viable processing and environmental solutions for the abundance of mineral-rich mine waste produced.

Mark Jensen, Chairman and CEO of ReElement Technologies, states "This development marks a significant milestone in American Resources and ReElement Technologies evolution showcasing the versatility, flexibility and scalability of our refining technology on the global stage. We are excited to share that in our Noblesville, Indiana Commercial Qualification Plant is producing and selling rare earth oxides (Nd, NdPr, Dy and Tb) to multiple U.S. customers. Demand has already exceeded current capacity, but we are excited about the expansion into our Marion, Indiana and Knott County, Kentucky sites. These expansions will enable us to efficiently respond to this demand as global markets diversify away from China's supply dominance, providing domestic solutions for both the commercial and defense industries in United States and allied nations.

ReElement



The ability to economically produce purified rare earth and critical minerals from coal and mine waste needed to be further development, and thanks to the efforts of our team, we are now transforming mining industry liabilities into valuable assets. By leveraging ReElement's technical innovation and cost-effective methods, we are creating value across multiple stages of the process chain and delivering benefits to shareholders of both ReElement and American Resources. Our commercial facilities in the U.S. are designed to be high margin, with a low processing cost and highly competitive with Chinese-based production."

American Resources Corporation Origins of Critical and Rare Earth Element Processing Came From Coal Waste:

- American Resources acquired eight coal mining operations, including five were purchased out of bankruptcy. The only liabilities assumed were approximately \$58 million in environmental obligations, which were undertaken to safeguard the environment, support the communities, and fulfill commitments to surety bond companies.

- To date, the Company has successfully had approximately \$37 million of these environmental liabilities released, benefiting all stakeholders. In addressing these liabilities, the traditional method of treating acid mine drainage in waterways involved neutralizing the water by adding chemicals.

- Beginning in 2016, the American Resources team pursued innovative methods to capture, process and purify high-value minerals from these waste streams, leading to the creation of ReElement Technologies.
- Using a commodity processing approach, the American Resources team evaluated various separation and purification methods and technologies. Most of these relied on modified forms of liquid-to-liquid separation and purification technologies using solvent extraction. However, it was determined then – and remains true today - that these methods are not economically viable in the United States or other developed nations.
- ReElement Technologies established a partnership with Purdue University due to the innovative processing designs and computing power developed by Dr. Linda Wang and Dr. Yi Ding. The team developed exclusive worldwide patents for rare earth and critical mineral processing, which build upon the foundational chromatographic separation techniques introduced by the rare earth industry in 1965.
- ReElement Technologies has the exclusive worldwide license to the technology across all feedstocks. Over the years, the Company has developed flow sheets and commercial processes for rare earth magnet recycling, battery material recycling, rare earth and battery mineral ore processing and mine waste / tailings processing.
- Developments over the last twelve months, and utilizing byproduct economics, has resulted in a high value and economically viable refining solution for processing coal mine waste concentrate in the United States.

Mark Jensen

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