Silex World Targets Closed-Loop Rare Earth Supply Chain from End-of-Life Magnets Back to Manufacturing

Silex World targets closed-loop rare earth recovery, turning end-of-life magnets and manufacturing scrap back into strategic industrial materials.



Silex World Targets Magnet-to-Magnet Circularity for Rare Earth Supply Chains

LEEDS, WEST YORKSHIRE, UNITED KINGDOM, September 10, 2026 /EINPresswire.com/ -- Silex World Ltd, a University of Leeds spinout focused on critical materials processing, today announced the continued development of its closed-loop rare earth strategy, designed to recover valuable materials from end-of-life permanent magnets and return them to the industrial supply chain for future manufacturing. The initiative builds on Silex World's work in rare earth recovery, urban mining, low-energy processing and modular refining, with the longer-term objective of creating a practical pathway from discarded permanent magnets and manufacturing scrap back to usable strategic materials.

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>
> *Michael Hodges*

Permanent magnets containing rare earth elements such as neodymium, praseodymium and dysprosium are increasingly important across electric vehicles, wind turbines, robotics, aerospace, defence systems, electronics and advanced industrial equipment.

As demand for these technologies grows, Silex World believes the magnets already circulating throughout the economy will become an increasingly important strategic resource.

The challenge, however, extends beyond collecting end-of-life magnets.

Materials must be identified, recovered, separated, processed and returned to a specification suitable for reintegration into industrial supply chains.

Silex World's strategy is focused on helping bridge that gap.

From Magnet Waste to Strategic Resource

Permanent magnets can enter the secondary-material stream from numerous sources, including electric motors, generators, industrial machinery, electronics, automotive components, manufacturing offcuts and equipment reaching the end of its operational life.

Rather than allowing those materials to leave domestic supply chains or become low-value waste, Silex World is developing processing routes intended to recover their strategic material content.

The company's approach is being developed around:

* End-of-life permanent magnet recovery
* Processing of magnet manufacturing scrap
* Recovery of neodymium, praseodymium and other valuable rare earth elements
* Continuous low-energy processing
* Separation and upgrading of recovered materials
* Modular processing close to feedstock and manufacturing demand
* Digital traceability through the material lifecycle
* Return of recovered materials to industrial supply chains

Silex World believes this could help transform permanent magnets from a largely linear supply chain into an increasingly circular strategic-materials system.

Michael Hodges, Founder of Silex World Ltd, said:

"A permanent magnet should not represent the end of a rare earth's useful life. The materials inside it have the potential to become part of the next generation of products."

He added:

"The opportunity is to create an industrial loop in which magnets are recovered, processed and returned to manufacturing rather than allowing strategically important materials to disappear from the supply chain."

Building the Missing Processing Link

Silex World believes recycling alone does not create a circular rare earth economy.

The critical link is the processing infrastructure required to transform recovered materials into products that manufacturers can use.

This midstream processing stage sits between waste recovery and advanced manufacturing and remains one of the principal challenges in developing resilient rare earth supply chains outside today's dominant processing centres.

Silex World's technology platform is being developed to address this part of the value chain by combining recovery technologies with continuous processing, modular infrastructure and multiple feedstock capability.

The company believes regional processing could allow recovered materials to remain within domestic and allied industrial ecosystems rather than travelling through lengthy international processing routes before returning as manufactured products.

Supporting the Next Generation of Manufacturing

Demand for high-performance permanent magnets is being driven by technologies central to electrification and advanced manufacturing.
Electric motors can require high-performance magnets to deliver compact and efficient power.
Wind turbines, robotics, automation, aerospace systems and defence applications can similarly depend upon rare earth permanent magnets where performance, size and reliability are critical.
This creates a growing strategic incentive to recover the materials contained within equipment when those products reach the end of their useful lives.
Silex World believes closed-loop supply chains could eventually allow manufacturers to regard end-of-life products not simply as waste, but as future sources of strategic raw materials.

UK Technology with International Potential
The company is developing its technology in the United Kingdom while progressing opportunities for international deployment, including its growing activities in India.
Both the UK and India have significant automotive, engineering, electronics, energy and advanced-manufacturing sectors capable of generating secondary material streams while simultaneously creating demand for critical materials.
Silex World believes this creates an opportunity to establish regional circular supply chains in which recovered materials can be processed closer to manufacturing demand.
The model could subsequently be replicated across Europe, North America and other allied industrial markets.

Towards Magnet-to-Magnet Circularity
Silex World's longer-term objective is to contribute to an industrial ecosystem capable of moving rare earth materials from magnet recovery through processing and ultimately back towards magnet and component manufacturing.
The company is not seeking to replace primary mining.
Instead, it believes recycled magnets, manufacturing scrap, industrial residues and primary resources will increasingly need to operate together within diversified critical-materials supply chains.
Michael Hodges added:
"Every tonne of strategic material that can be recovered and returned to manufacturing is a tonne that can remain within the industrial economy rather than being lost from it."
Silex World is continuing to develop its processing technologies and engage with feedstock providers, manufacturers, industrial organisations and strategic partners as it works towards scalable closed-loop critical materials infrastructure.
The company's ambition is straightforward: recover the material, process the material, verify the material and return it to manufacturing.

About Silex World Ltd
Silex World Ltd is a University of Leeds spin-out company developing technologies for critical materials recovery, rare earth recycling, advanced materials processing, industrial minerals

upgrading, and sustainable manufacturing systems. The company is focused on creating scalable solutions that support resilient and circular supply chains for strategic materials.

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