New Research Reveals Opportunities for Industrial Symbiosis in the Copper Industry

New research has highlighted the opportunity for industrial symbiosis, the concept of recovering and reusing waste from one industrial operation by another, to deliver significant circularity benefits for extending the useful life of copper. The research, completed by engineering and management consulting firm, Arcadis, found the application of industrial symbiosis processes to electric vehicle (EV) battery recycling resulted in approximately 70 to 75 percent of their economic value being retained.

Arcadis' work, commissioned by the International Copper Association (ICA), shows that copper-dense EV batteries can be repurposed for stationary energy storage in applications for the grid, residences and commercial enterprises. In addition, repurposed copper from EV batteries can be utilized in renewable energy systems and thermal energy generation, further prolonging the copper use phase.

Alain Vassart, Senior Regulatory Consultant at Arcadis, said, "Industrial symbiosis is an exciting concept that can help solve difficult industrial challenges. In the case of EV batteries—while the retention of financial value is, of course, a significant advantage—so too is the opportunity for EV batteries to be repurposed in other energy storage applications, including grid and residential storage. I see exciting potential for industrial symbiosis in the copper sector, with opportunities to extend the concept further as technology and knowledge sharing increase."

This latest research builds on existing ICA-commissioned research on the concept of industrial symbiosis. Earlier research identified opportunities for iron silicate, a byproduct of the smelting process, to be reused as aggregate in road construction, cement production, concrete and abrasives. Significant reductions in CO_2 emissions can be achieved by adding iron silicate to blended cements.

Colin Bennett, Market Intelligence Director at ICA, said, "Copper, with its infinite life cycle, is a truly circular material. This important research demonstrates that the use of industrial symbiosis for electric batteries can further enhance copper's role in increasingly sustainable practices."

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For additional information, please visit - https://copperalliance.org/wp-content/uploads/2022/09/Industrial-Symbiosis-FINAL_Arcadis-2.pdf

About the International Copper Association

The International Copper Association (ICA) brings together the global copper industry to develop and defend markets for copper and make a positive contribution to the UN's Sustainable Development Goals. Headquartered in Washington, D.C., ICA has offices in three primary regions: Asia, Europe and North America. ICA and its Copper Alliance® partners are active in more than 60 countries worldwide. For additional information, please visit copperalliance.org.

About Arcadis

Arcadis is the leading global design & consultancy organization for natural and built assets. It is made up of 29,000 people, active in more than 70 countries that generate €3.4 billion in revenues. Arcadis supports UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world. www.arcadis.com

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