



INDUSTRIAL MINERALIZATION

Repurposing Industrial Waste into Durable Climate Value

AUTHORS:



A leading Industrial
Mineralization
solution provider



Nonprofit consultancy
dedicated to Climate
Tech

November 2025

Executive Summary

The world has a tough equation to crack: mountains of waste on the ground, gigatonnes of CO₂ in the sky. What if two wrongs could make a right?

Industrial Mineralization (IMin) removes carbon by mineralizing alkaline industrial waste such as mine tailings and steel slag. It is a pathway to durable gigatonne-scale carbon removal, transforming liabilities into assets, and waste into repair.

The difference is harnessing the scale of heavy industry. IMin plugs into industries' ability to make big systems work: operational expertise, logistics, infrastructure and feedstock. This industrial integration will enable carbon removal to scale to planetary impact.

IMin is durable and verifiable, with low resource intensity. By integrating at existing sites, it reduces upfront capex and the need for additional land.

For mining, steel, cement, and power generation, IMin is a multibillion-dollar opportunity: repurposing waste into value, improving carbon and environmental footprints, and delivering tangible co-benefits.

Today, Industrial Mineralization is a sector of startups led by teams with deep industry experience. Momentum is real, with signed partnerships and strategic investments across regions and feedstocks. In October 2025 for example, Arca announced an agreement with Microsoft to deliver ~300,000 t of durable carbon dioxide removal (CDR) over 10 years, the largest commercial agreement yet for engineered carbon mineralization.

For industry leaders, investors, and governments, the message is clear: IMin is a carbon removal pathway that turns waste into value and anchors climate repair at the heart of industrial scale.