

Transforming Mining Tailings into Artificial Stone

From waste → to sustainable materials



CRISTALL

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Technical Objectives and Challenges

To scale from prototype to industry, key objectives include:

- Feedstock optimization — selecting tailing mixtures that form stable crystalline structures
- Energy efficiency — reducing melting energy through optimized temperature regimes and additives
- Phase transition control — ensuring defect-free crystallization and uniform structure
- Strength and resistance testing — validating durability, acid resistance, and radiation stability
- Recorative properties — developing methods to control color, texture, and surface design

Challenge: no current technology produces materials equal to natural igneous rocks. Addressing this requires research in materials science, geochemistry, and thermodyn.



Market Opportunity

- Construction & infrastructure — slabs and blocks comparable to natural stone
- Modular construction — fast-assembly building elements
- Environmental safety — tailings processing, dam reinforcement contamination reduction
- River & hydraulic works — erosion prevention, coastal protection
- Nuclear & chemical uses — acid- and radiation-resistant materials
- Waste storage — isolation of toxic and radioactive substances

CRISTALL unites economic benefits with environmental solutions, creating strong U.S. and global potential.



Company and Team

CRISTALL Inc. was incorporated in the U.S. in 2024 to advance a technology that transforms mining tailings into artificial igneous rocks. The project originated in 2017 and has validated prototypes approved by the Russian Academy of Sciences.

Experience and milestones

- Participation in programs of the Skolkovo Foundation and the Agency for Strategic Initiatives (2017-2021)
- Presented at the MIT Circular Economy Forum (2024)
- Submitted application and received interest from Greentown Labs (2025)
- Demonstrated samples to potential industrial partners

Key individual

- Oleg Kazbekovich Hatsaey — Founder and CEO, with 7+ years of experience developing the technology and hands-on expertise in creating and testing

Plans in the U.S.

- Collaborations with university labs in materials science and environmental engineering
- Partnerships with mining and industrial companies



CLOSING AND CONTACT

CRISTALL combines economic benefits with environmental solutions.

The company's technology opens new opportunities for waste recycling and the creation of sustainable materials for construction, energy, and environmental protection.

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