



Sustainable Recovery of Critical Metals from Low-Grade Ores & E-Waste

Mission

Timna Elements is developing a proprietary electro-catalytic hydrometallurgical platform for low-impact domestic recovery of Copper, Gold, Silver, and Platinum Group Metals (PGMs) from low-grade ores, mining waste, and electronic waste.

The Problem

Global electrification is driving unprecedented demand for critical minerals, while ore grades continue to decline. Conventional extraction technologies are slow, energy-intensive, and heavily dependent on toxic chemicals, leaving billions in stranded metal value inaccessible.

The Solution

Timna Elements combines accelerated leaching and solvent-free selective extraction in a modular, low-energy platform compatible with existing industrial infrastructure. This enables scalable, cost-effective recovery of critical metals from previously uneconomic resources.

- **TLeach™** — Accelerates sulfidic ore leaching from years to weeks through catalytic ferric iron regeneration using air.
- **TExtract™** — Solvent-free selective metal separation with >99% selectivity under ambient conditions.

Competitive Advantages

- Lower CAPEX & OPEX versus smelting and autoclaves
- No cyanide, nitric acid, or toxic solvent systems
- Modular retrofit solution compatible with existing infrastructure
- Minimal secondary waste generation
- Enables circular recovery from mining waste and e-waste

Backing & IP

Built on exclusive IP originating from Technion – Israel Institute of Technology, with patent applications filed. Supported by the Israel Innovation Authority and climate-tech investors.

Leadership

- Dr. Gil Barnea — Energy & climate-tech entrepreneur, CEO
- Prof. Youri Gendel — Electrochemistry expert, core technology inventor, CSO
- Dr. Anastasia Kipnis — Tech transfer, scale-up & industrial R&D leader, CTO