



Bioleaching of metals from secondary resources (industrial wastes)

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Field : **Bio-engineering**



KEYWORDS

Bioleaching, Copper, circular economy, Metal recovery, Secondary resources, Precious metals, Industrial waste

Description :

This emerging technology is designed for metal recovery from secondary resources. Based on well-established know-how for copper-ores refinery and precious metal biomining, the microbial assisted leaching offers new opportunities for heavy and precious metals recovery from several urban and industrial wastes (automotive industry, metallurgy, printed circuit boards, e-waste ...).

The technology is based on an innovative process integrating bacterial cell encapsulation for a higher resistance to dissolved organics and heavy metals.

Benefits / Advantages :

- Cell encapsulation offers higher extraction rates by enhanced cell density, biomass protection against harsh medium conditions and facilitated continuous process.
- Economical and environmental sustainable alternative to landfill of series of selected poly-metallic industrial wastes.
- Eco-friendly nature of biohydrometallurgy compared to chemical processes or pyrometallurgy, is supported by mild operating conditions (low-pressure and temperature, reduced chemical input).
- Good results with copper extraction e.g. from brake-pads dust.
- Good performance/return compared to other biolixiviation processes.
- Efficiency in comparison with planktonic cultures in terms of biomass protection against harsh medium condition.

Application Sectors

Biohydrometallurgy/Hydrometallurgy - Waste recycling
Metallurgy
Mining Sector

Intellectual Properties	TRL	Type of Partnership Sought
Patent N° PCT/EP2014/061970	4. Laboratory validated prototype	Research collaboration/ Technical transfer/ Knowhow transfer