

CONSORTIUM



biorecover-project



biorecover

www.biorecover.eu

BIORECOVER
Raw Materials. Sustainable. Safe



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°821096

ABOUT THE PROJECT

The overall objective of BIORECOVER is the research and development of a new sustainable and safe process, essentially based on biotechnology, for selective extraction of a wide range of Critical Raw Materials (CRMs). This will involve a multidisciplinary consortium that encompass the whole value chain and key international cooperation (ZA: UWITS, CeBER), from relevant unexploited secondary and primary sources:

- EE (Rare Earths) coming from Bauxite Residue (BR) from Greece (MYTILINEOS);
- Mg (Magnesium) contained in Mg wastes of low grade minerals with silicon or limestone impurities & calcination by-products- (MgW) from Spain (MAGNA);
- PGM (Platinum Group Metals) included in PGM low-grade ores consisting in flotation tailings (PLGO) from South Africa (UWITS) & PGM slags, dusts and press cake (PCBP) from United Kingdom (JM).



IMPACTS



Generate know-how through patents & publications.



Increase process selectivity, broader range & higher recovery rates of valuable raw materials



Increase economic performance



Improve the competitiveness



Improve health, safety & environmental performance of operations

OBJECTIVES

- Determine the detailed characteristics and establish a conditioning procedure for each raw material to maximise the subsequent biorecovery process
- Remove the main IC (Interfering Components), present in BR (Bauxite Residue) in order to concentrate the REE (Rare Earths) and increasing their accessibility as well as minimising their loss
- Get selective immobilised biosorbents based on siderophore-producing bacteria and purified siderophores for extracting selectively REE
- Obtain a flexible and modular biorecovery process able to treat primary and secondary sources
- Define the optimal combination of processes of the BIORECOVER solution
- Ensure the highest health, safety and risk performance
- Define the quality requirements of the metals recovered and if necessary, develop the downstream processes.
- Valorise the generated residual streams, minimise the water consumption and wastewater generation
- Fight climate change through the acquisition of processes with lower energy consumption and implementation of circular economy models