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1 April 2021 – 31 March 2023

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PHEIDIAS Project is funded by the EIT RAW MATERIALS.

6 Project partners
2 RIS TASK partners
7 countries

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https://pheidias.eu/

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PHEIDIAS

An innovative hydrometallurgical process for the recovery of Platinum Group Metals (PGMs) from Spent Vehicle Catalytic Converters (SVCCs).

eit RawMaterials
Connecting matters

Co-funded by the European Union

Objective

The project's main objective is upscaling an innovative hydrometallurgical process from Technology Readiness Level (TRL) 5 to TRL 8 for the recovery of PGMs from SVCCS, to generate significant revenue streams for the commercial partners and future adopters (i.e., licensees).

The project will additionally strengthen partners' SVCCs supply network in the partner participating countries to increase both PGMs recovery targets and the sales of end-products to the industrial customer base for PGMs.

PHEIDIAS will also support the creation of secondary source PGMs value-chains, with an ever-increasing potential that will contribute in the long term to the partial replacement of the primary sources of these metals.

Expected Results

1. **Upscaling technological readiness level:** Upscale the PHEIDIAS innovative hydrometallurgical process from TRL5 to TRL8.
2. **Extended exploitation of PGMs:** Create a secondary source of PGMs value-chains that will contribute to the partial replacement of the primary sources of these metals.
3. **Environmental and economic benefits:** Increase the recovery rates of Platinum (Pt), Palladium (Pd) and Rhodium (Rh) and reduce liquid waste, as compared to competitive processes.
4. **Alignment with EIT Raw Materials objectives:** Help towards the alignment of the first and third strategic objectives of EIT Raw Materials, i.e., the securing of raw materials supply and the closing of materials loops.

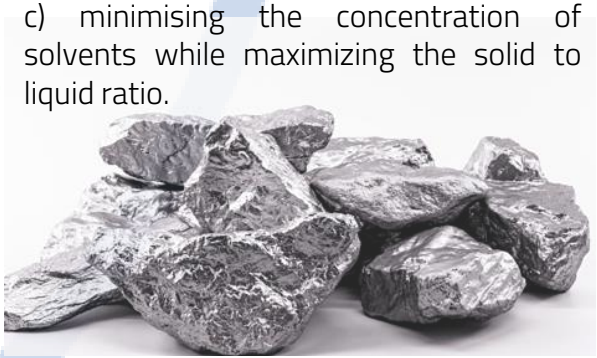
Key Beneficiaries

- ✓ Recycling plants, who wish to use a more efficient and environmentally friendly process for the recycling of SVVCs.
- ✓ R&D waste management organisations, who will better manage SVCCs.
- ✓ Secondary raw materials traders, who will have access to new secondary raw materials streams.
- ✓ Research organisations/academia, who will be able to employ the PHEIDIAS innovative technology into their research.

Technology

Spent Vehicle Catalytic Converters (SVCCs) are a significant, in terms of both volume and value, secondary source of Platinum Group Metals (PGMs), namely Platinum (Pt), Palladium (Pd) and Rhodium (Rh). A single SVCC contains approximately 2g of precious metals. At European level, it is estimated that the value of precious metals lost annually by SVCCs is higher than €200m (8tn).

The competitive advantage of the innovative hydrometallurgical technology is the increased material recovery rate, as well as significantly lower operational costs. The rates of Platinum, Palladium, and Rhodium recovery with this technology have already reached ~98%, ~98%, and ~60%, respectively, with highly increased operating flexibility and cost efficiency. More specifically, innovation lies in the following: a) the solubilisation of the waste takes place at a pre-treatment stage, b) cheap organic solvents are used by optimising the concentration of oxidants and salts, and c) minimising the concentration of solvents while maximizing the solid to liquid ratio.



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