

Membrane-based liquid extraction as a key technology for secondary zinc recovery from spent pickling acids



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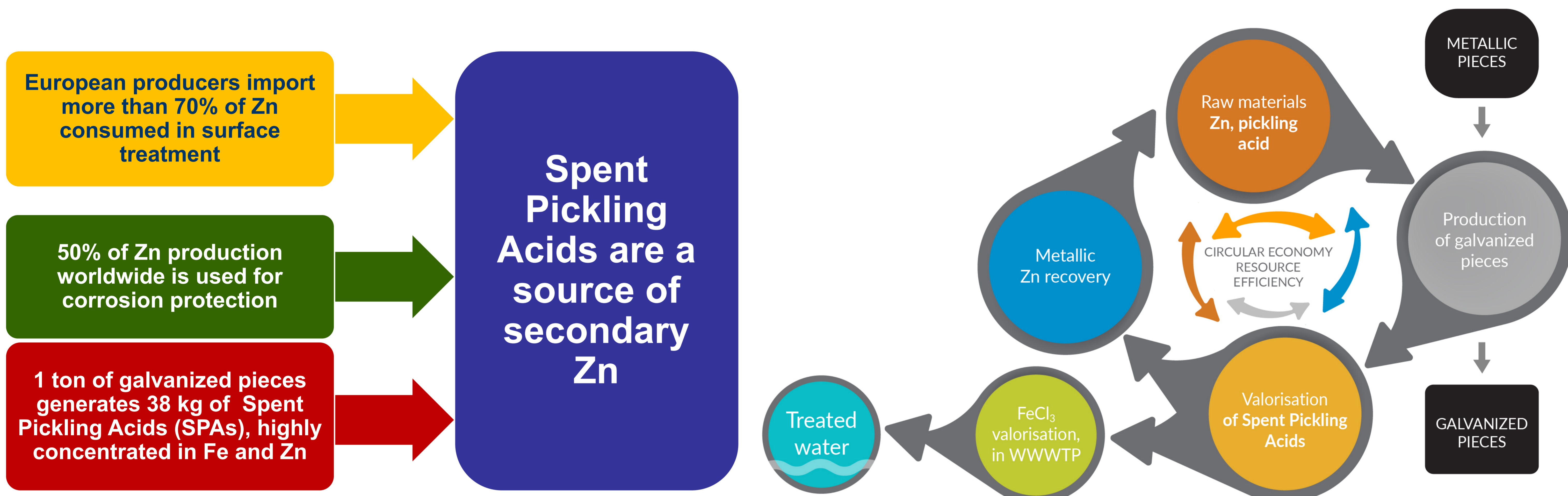


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OPPORTUNITY AND STRATEGIC OBJECTIVE OF PROJECT

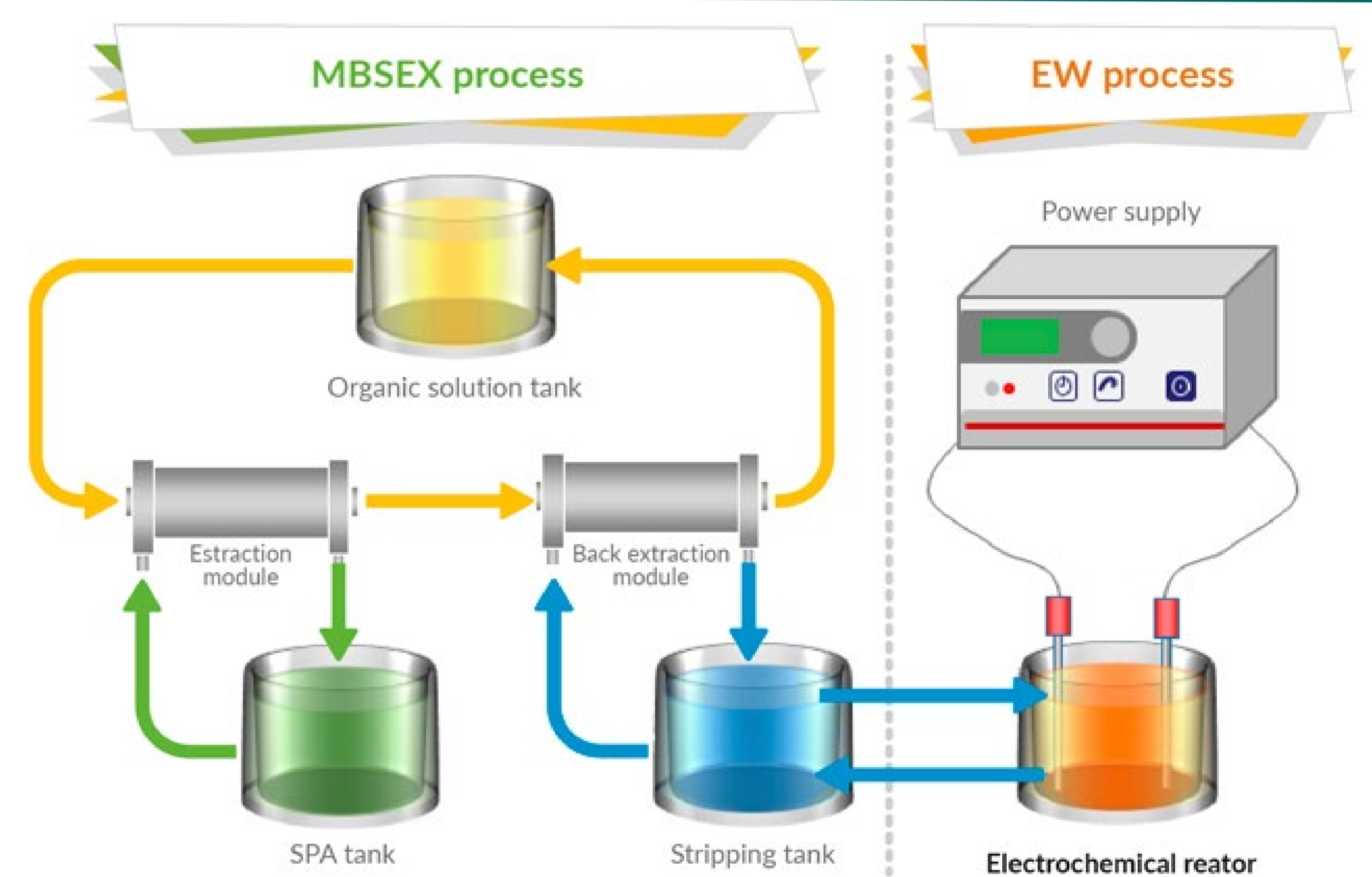
LIFE2 ACID

Towards a Circular Economy of the Metal Resources in the Galvanic Industry



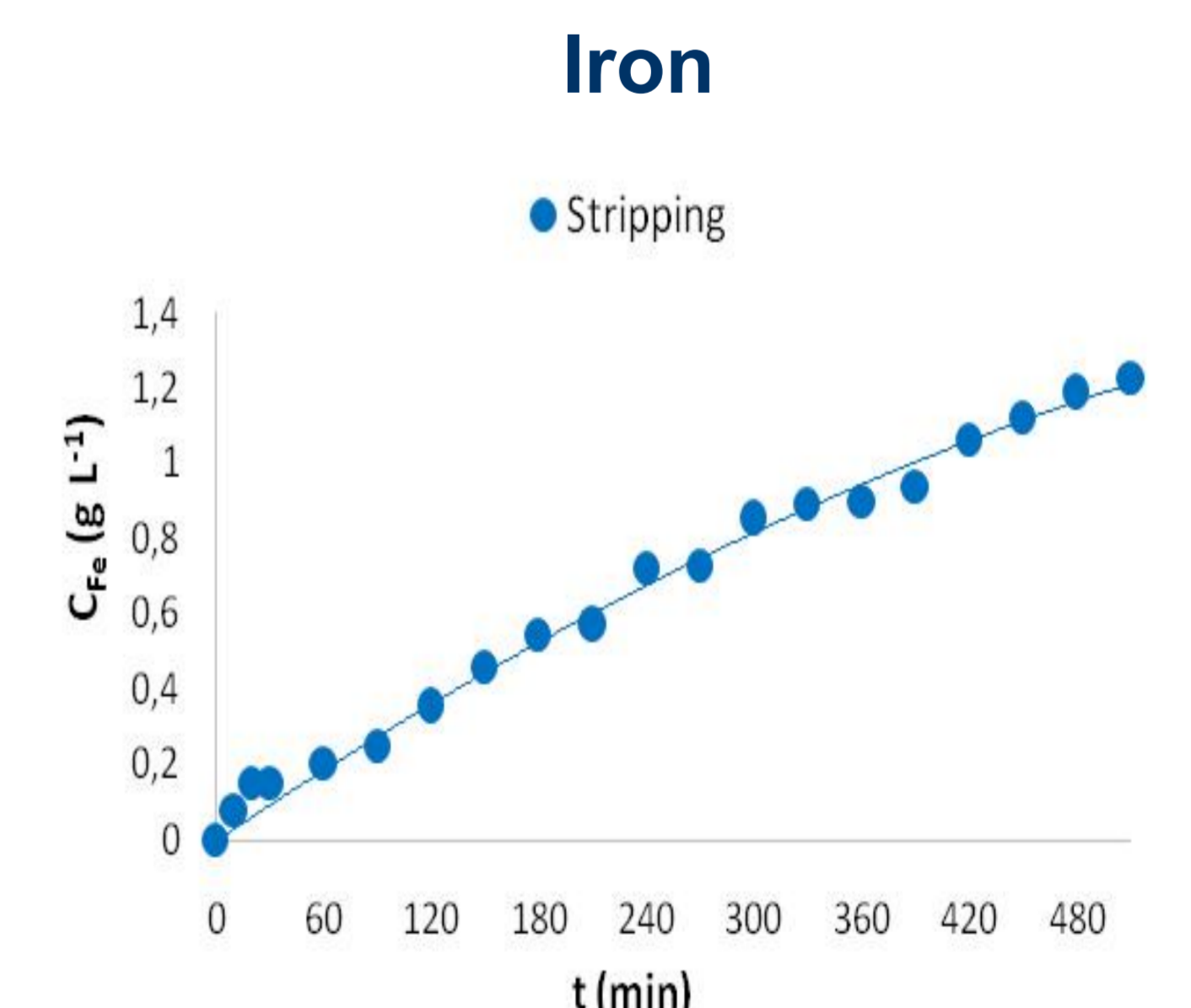
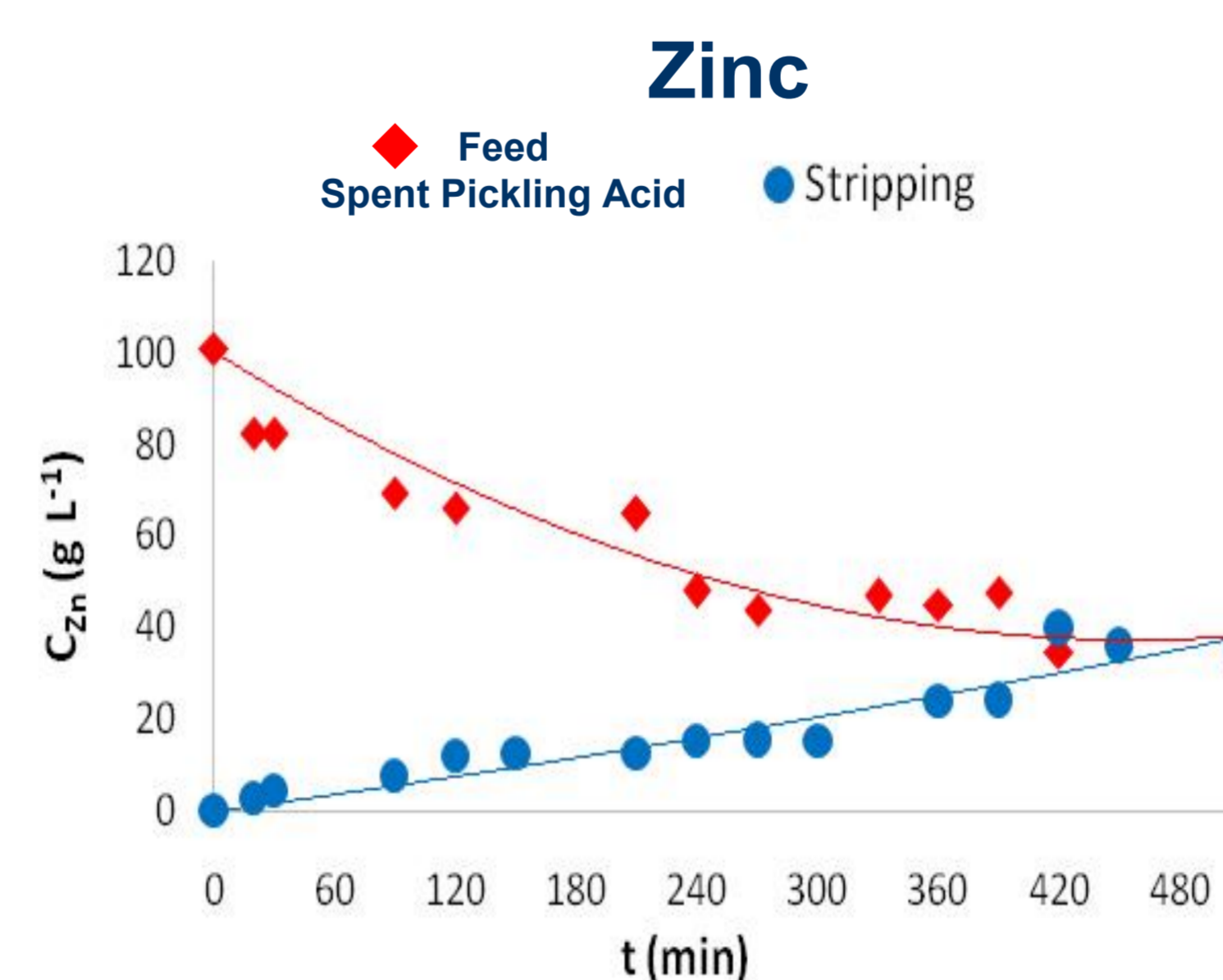
SCIENTIFIC/TECHNICAL OBJECTIVE

- To develop a **membrane based solvent extraction (MBSEX)** process that enables the **selective separation of SPAs** into:
 - the retentate, with high iron concentration and
 - the permeate, that contains zinc.** Metal zinc will be recovered by electrowinning (EW).
- Pilot plant demonstration and replication.
- Techno-economic analysis of Zn recovery.
- Reduction of environmental impacts of galvanization.



MEMBRANE BASED SOLVENT EXTRACTION PILOT PLANT RESULTS

Feed	Organic	Stripping
Spent Pickling Acid	TBP/Shellsol D70	Tap water
V_{feed} (L)	V_{organic} (L)	$V_{\text{stripping}}$ (L)
20	40	40
Hollow fiber contactors (LiquiCel)		
Extraction / Stripping 20 m ² each one		



- Preliminary results show that 60 % of Zn content in the SPAs is transferred to the water stripping.
- Only 1.5% of initial iron accompanies zinc in the stripping stream.
- MBSX is highly selective for the Zn/Fe separation contained in spent pickling acids produced in hot dip galvanizing.

Acknowledgements



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Project Partners

