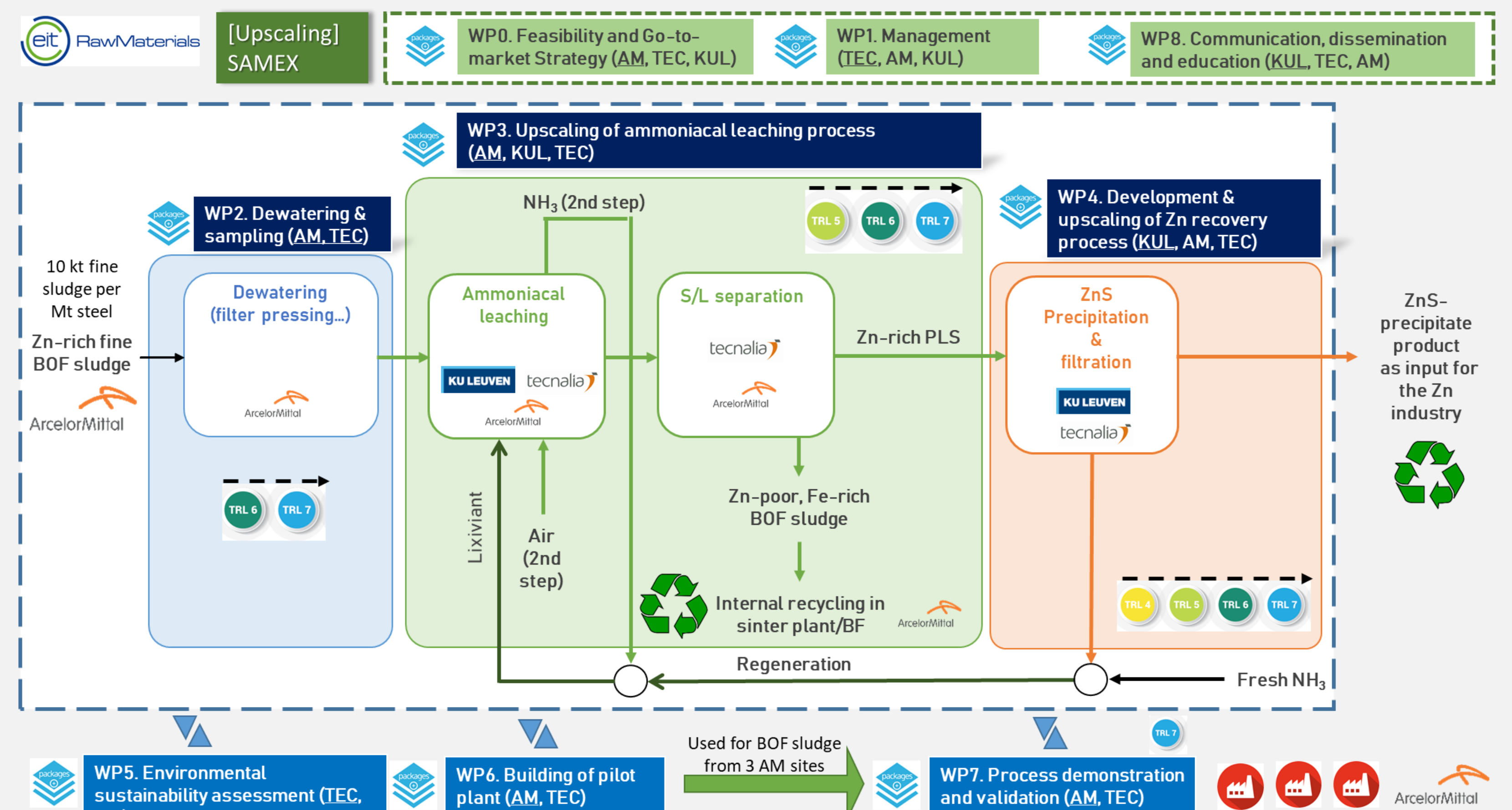




- For **each million tonne of steel** ArcelorMittal (AM) produces, it also generates on average **10,000 tonne** of zinc-rich **fine Basic Oxygen Furnace (BOF)** sludge.
- In contrast with coarse BOF sludge, which is already internally recycled by ArcelorMittal (via sinter plant to Blast Furnace), fine BOF sludge cannot be fed to the Blast Furnace (BF), as the zinc content would lead to prohibitive refractory failure and disturbances in the BF process.
- As a result, ArcelorMittal either **internally stores these sludges** or is forced to **landfill them**.

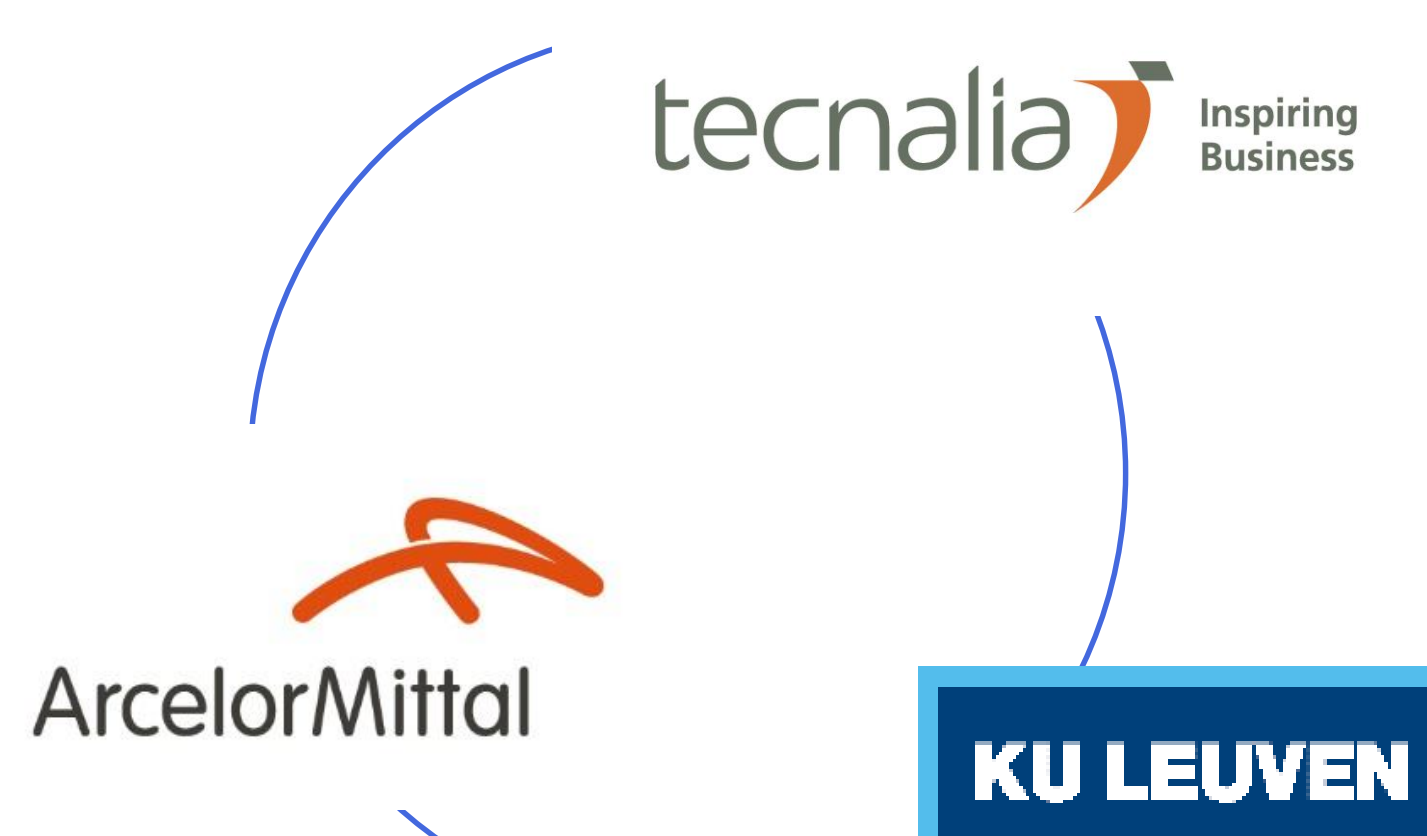
- ArcelorMittal developed, in collaboration with KU Leuven, an **ammoniacal leaching process**. The process selectively extracts zinc from the sludge while leaving behind most iron.
- If the zinc content is low enough, the **cleaned, iron-rich residue can be fed to the BF**, representing major iron cost savings.
- Concurrently, the leached zinc is precipitated as **zinc sulphide** which serves as a feed for the zinc industry.
- In EIT Raw Materials SAMEX, Tecnalia (Spain), ArcelorMittal (Spain) and KU Leuven (Belgium) will **upscale the ammoniacal leaching process and the zinc recovery process to TRL7**, aiming to engineer and build a pilot plant.



Pictures: KU Leuven 1 L and 5 L reactors (left), Tecnalia 100 L reactor (centre) and Tecnalia filter press (right) used for intermediate upscaling steps

- After basic engineering and a preliminary CAPEX/OPEX performed by Tecnalia, ArcelorMittal will lead the pilot plant construction in order to demonstrate and validate the flowsheet, using distinct BOF sludges from different ArcelorMittal plants in Europe. In parallel, the environmental sustainability assessment will be produced by Tecnalia.
- If successful, ArcelorMittal foresees to **implement the process in at least one third of its EU-plants** by 2025 (i.e. treatment of 120,000 tonne/year BOF fine sludge).
- Furthermore, **other sludge producers and steelmaking companies** will be able to **benefit** from the results generated in the project.

Partners in SAMEX consortium



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