



ABOUT

SIM² KU Leuven is a world-leading, interdisciplinary research cluster at KU Leuven in the field of urban and landfill mining. SIM² KU Leuven's mission is to perform cutting-edge fundamental, strategic and applied research contributing to cost-effective, zero-waste valorisation of End-of-Life waste, mining waste and industrial process residues.

EXPERTISE

SIM² KU Leuven targets zero-waste valorisation of urban and industrial waste. Key focus areas are:

1. Direct (pre-consumer) recycling of metal scrap and swarf generated during the production of metal based (intermediate) products
2. Post-consumer recycling and/or urban mining of, respectively, flows and stocks of complex, multi-material, metal-containing products (as for instance a hybrid electric vehicle)
3. Landfill mining of historic urban solid waste
4. Metal recovery from flows of industrial process residues from primary and secondary metal production
5. Metal recovery from stocks of landfilled mining waste and industrial process residues.

The zero-waste vision implies that for (4) and (5) the residual mineral matrixes are valorised in building or engineered materials.

As the coordinator of 6 (Marie-Curie) European Training Networks (FP7, H2020) and as a leading partner in both EIT Raw Materials and the European Enhanced Landfill Mining Consortium (EURELCO: www.eurelco.org), SIM² KU Leuven has key assets to participate in EU projects. These flagship domains are:

- Solvo- and ionometallurgy (for critical metal recycling (cf. <http://www.kuleuven.rare3.eu/> and Advanced ERC Grant SOLCRIMET)
- Pyro/plasma-, electro- and hydrometallurgy
- Development of innovative building materials from secondary resources
- Enhanced Landfill Mining (cf. <http://elfm.eu/> and www.eurelco.org)
- Sustainability assessment of recycling processes (cf. LCA, MFA etc.)

FACILITIES & SERVICES

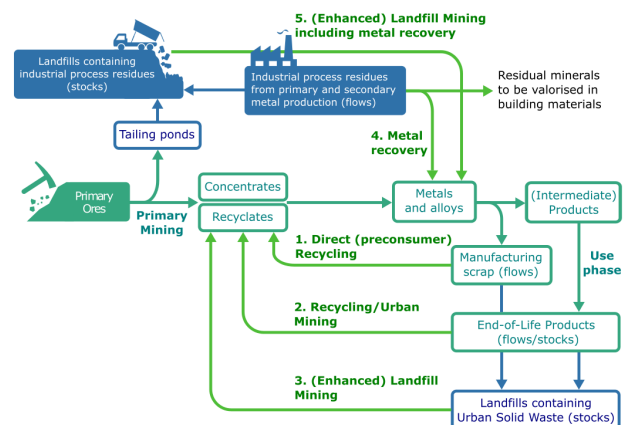
SIM² KU Leuven has extremely well-equipped laboratories for performing work in pyro-, hydro-, electro-, solvo- and ionometallurgy:

- A wide variety of furnaces for pyro- and electrometallurgical experiments
- Various equipments for synthesis/characterisation of molecular organic and inorganic compounds
- Lab-scale and mini pilot-scale equipment for solvent extraction;
- Various analytical techniques, e.g. FEG-EPMA-WDS, ICP-MS, CS-AAS, XRF
- Equipment for process intensification (Autoclave (Büchi Ecoclave) equipped with ultrasound probe; Multiple ultrasound devices, Malvern Mastersizer LDA)

Likewise, state-of-the-art possibilities are present for the development of engineered materials out of cleaned residues:

- A fully equipped lab for the synthesis and characterisation of building materials (e.g. Vicat, isothermal conduction calorimetry, a range of rheometry set, Mössbauer spectroscopy, Nanotom Phoenix (submicron resolution), Nikon X, Skyscan 1172 micro CT (micron resolution), mercury intrusion porosimetry etc.)

A detailed list can be found here: <http://kuleuven.sim2.be/about-sim%20b2-ku-leuven/research-equipment/>



MORE INFORMATION

Website: <http://kuleuven.sim2.be>

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