SMaRT-Pro² Sustainable Materialization of Residues from Thermal Processes into Products
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KATHOLIEKE UNIVERSITEIT LEUVEN | khbo KATHOLIEKE HOGESCHOOL BRUGGE - OOSTENDE | HUB | ASSOCIATIE K.U.LEUVEN

The SMaRT-Pro² Industrial Knowledge Platform

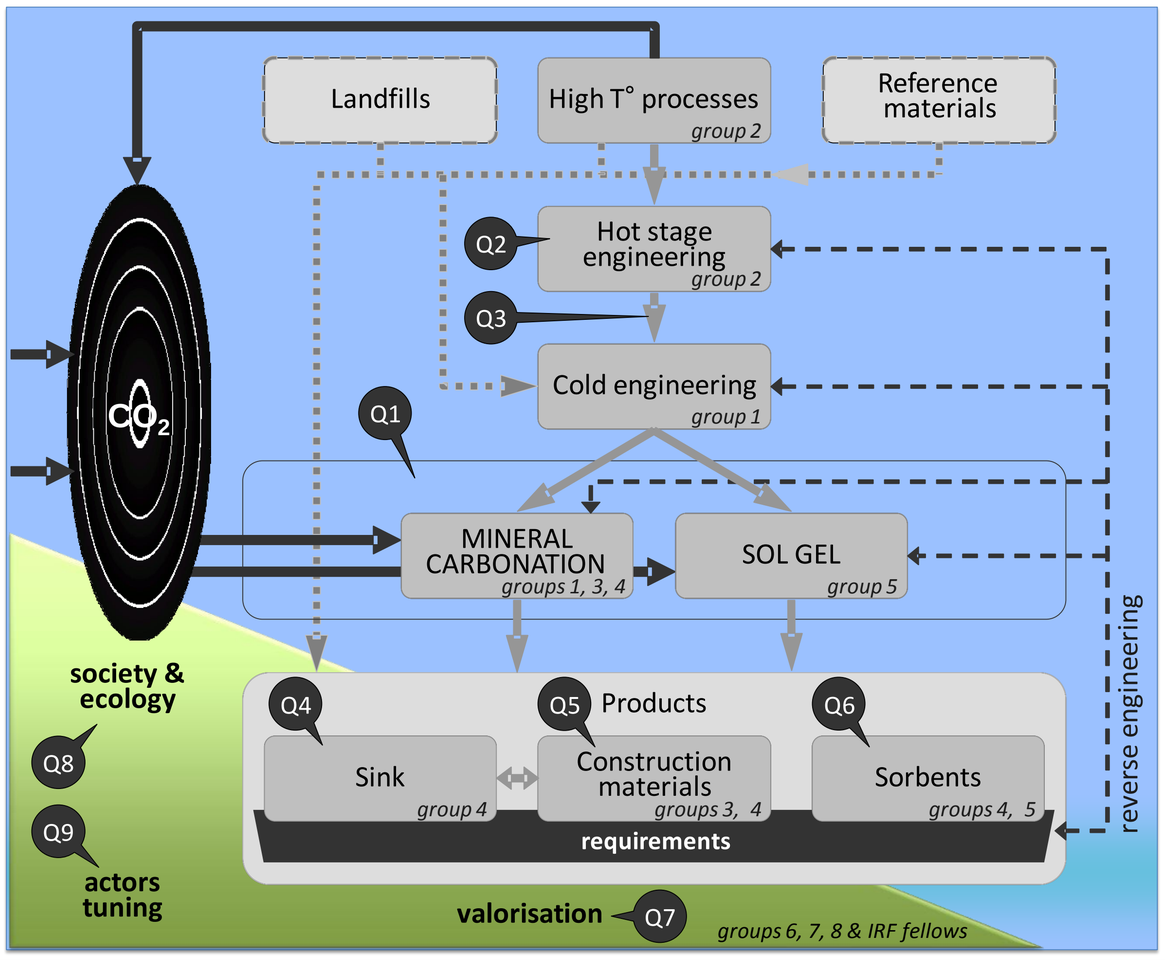
K.U.Leuven Departments of Chemical Engineering, Metallurgy and Materials Engineering, Civil Engineering, Microbial and Molecular Systems, Earth and Environmental Sciences, International and European Law
HUB Center for Corporate Sustainability
KHBO Department of Industrial Science and Technology

Context and Aim

Thermal processes constitute a bulk activity in metals production, waste incineration, glass industry, etc. They generally produce major amounts of solid waste materials, such as slag and fly ash. Rising prices of raw materials and growing awareness for environmental issues lead to a change in perception of these materials from waste to a potential product. However, this trend is still hampered by various barriers: unreliable low-cost technologies, uncertain and inferior quality of the material, underdeveloped legislation and markets for the resulting products, and poor societal experience with closing material cycles. Thermal processes also generate a vast amount of carbon dioxide which they emit into the atmosphere. The discussion concerning carbon dioxide is evolving rapidly, but it is clear that the emission of this greenhouse gas will become ever more regulated in the future. Limiting net carbon dioxide emissions will in this regard constitute a financial benefit for industry.

Sustainable use of solid residues and carbon dioxide, the two largest and most important waste products from thermal processes, is an urgent issue both for the industry involved and society as a whole, considering the financial and environmental repercussions of their production. This Knowledge Platform focuses on different types of waste-to-product valorisation, a.o. the production of a carbon sink, construction materials and sorbents. It aims at valorising solid materials and/or carbon dioxide in high-value products by intensified processes and with clear prospects on the economic and legislative feasibility, ecological benefits and societal relevance.

Perform research on selected topics

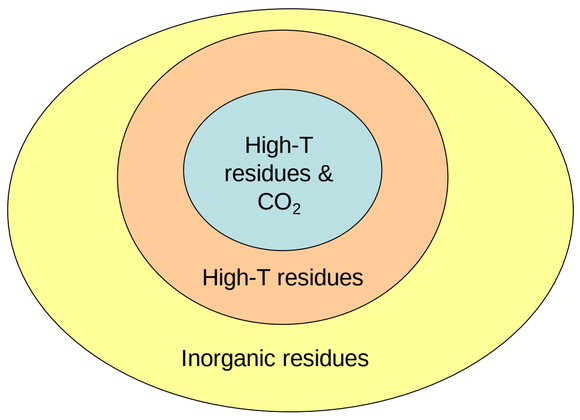


Bring together the involved actors on the relevant topics

Academic research groups
Industrial companies
Investment funds
Government
Civil society

Go beyond 'just' interaction

- ❑ Jointly identify new topics, find the common issues and take advantage of the complementary goals
- ❑ Strive for collaboration with other research centers and consortia
- ❑ Develop project proposals for Flemish/European/bi- or multilateral funding



Additional research lines:

- ✓enhanced landfill mining
- ✓new cements from industrial slags/ashes
- ✓recovery of metals from industrial by-products
- ✓ ...

Conclusions

This K.U.Leuven Platform assembles the necessary background for suggesting breakthrough solutions and advancing in recycling of inorganic residues, not only at the level of technology, but also with respect to non-technological barriers such as economy, legislation and multi-actor processes.

Industrial partners are invited to collaborate with the Platform.

Contacts

Tom Van Gerven, tom.vangerven@cit.kuleuven.be
Peter Tom Jones, peter.jones@mtm.kuleuven.be
Karel Van Acker, karel.vanacker@mtm.kuleuven.be

www.smartpro2.eu
smartpro2@cit.kuleuven.be