FINEST MINERAL ADDITIVES

Abstract
Highly variable and ubiquitous FINEST mineral additives in plastics limit high-quality recycling and cause environmental issues and human toxicity. FINEST mineral additives develops and demonstrates mixed mineral / plastic waste recycling value chains by combining pyrolysis of mechanically pretreated demolition waste from external thermal insulation composite systems (ETICS) with the processing of recycled cement clinker (RC-Cement) to maximize both, utilization of organics and inorganics as secondary industrial feedstock. The main achievement is a ready-to-transfer demonstration of the generic value chain at TRL 5 level, making use of the pyrolysis pilot plant and the new "R-Zement" calcination pilot plant at KIT. We will evaluate the toxicological risk of waste feedstocks, intermediates, and recycled materials. Finally, a networked concept for waste ETICS is developed, based on an assessment of local/decentral and integrated plastics and mineral fines recycling.

Work Packages

Materials and Analytics **WP1**
ITC, Technical Mineralogy

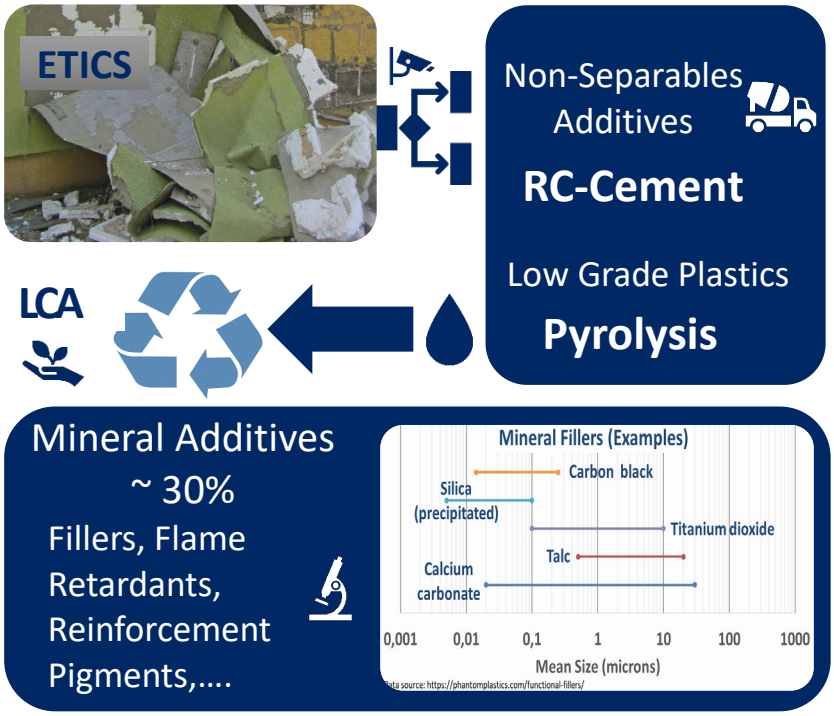
Sensors (Process Control) **WP2**
Helmholtz Institute Freiberg

Pyrolysis **WP3**
ITC, Pyrolysis and Gas treatment

RC-Cement **WP4**
ITC, Technical Mineralogy

Health and Environment **WP5**
ITC, Aerosols and Particles

LCA for decentralized Plant **WP6**
Institute for Industrial Production (IIP. KIT)



FINEST RESEARCH SCHOOL The FINEST Research School aims at an excellent education of postgraduate students in the field of resource recovery. The education addresses multiple disciplines, and explicitly includes capabilities in inter- and transdisciplinary research.

FINEST MINERAL ADDITIVES is a Core Project within the overarching project FINEST which addresses the use and management of finest particulate anthropogenic material flows in a sustainable circular economy.

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Partner: KIT HZDR HZB TU Bergakademie Freiberg UFZ

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