

Joint Research Project

Development of Ecomaterials for Low-Cost Housing

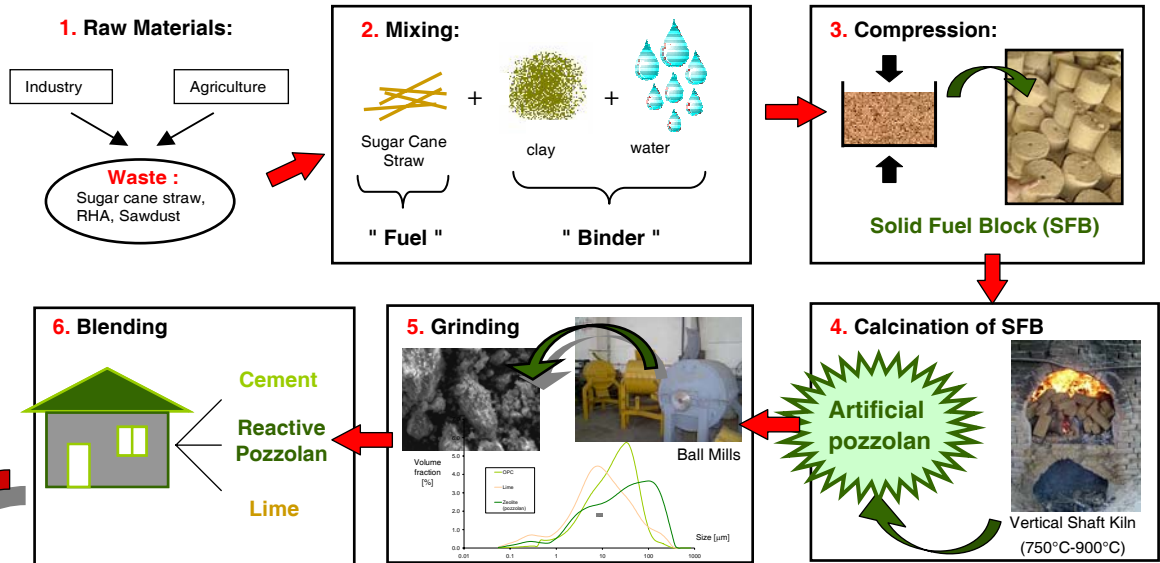
Rodrigo Fernandez, Prof. K. Scrivener (EPFL), Prof. F. Martirena (UCLV)



➤ Objective

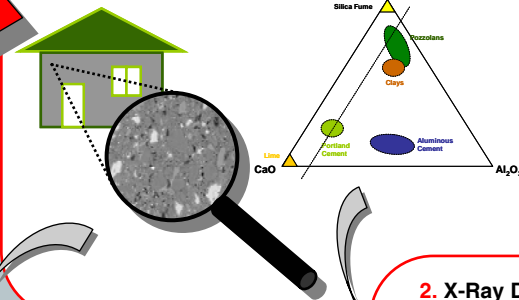
This joint research project is intended to study pozzolans derived from mineral or agricultural sources in developing countries and understand their effect as cement replacement in concrete. Through combined research in the field and characterisation tools available at EPFL, we hope to be able to support consistent production processes to predict the long term behaviour of such materials.

➤ The solid fuel block (SFB) concept for the production of reactive pozzolans



PROCESSING

➤ Microstructural analysis of blended cement concretes

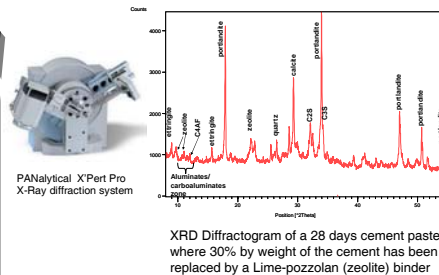


1. Scanning Electron Microscopy (SEM)

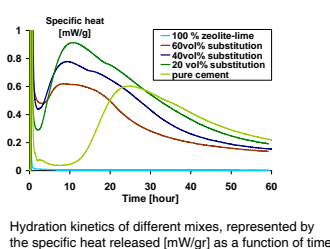
Typical measurements with this instrument include Hydration rate of the cement and its porosity. It is also equipped with an Energy Dispersive Spectrometer (EDS) for chemical analysis and phase identification.

Microstructure of a 28 days cement paste where 50% by weight of the cement has been replaced by a Lime-pozzolan (zeolite) binder

2. X-Ray Diffraction (XRD)



3. Isothermal Calorimetry



CHARACTERISATION



From Laboratory level to full scale trial in the field...



Acknowledgements:

- The financial support of the Swiss National Fund for research (FNS) is gratefully acknowledged.
- Kurt Rhyner (ECOSUR), Mathieu Antoni (EPFL)