

Laboratory of Solid Structures

Faculty of Science, Technology and Communication of the University of Luxembourg

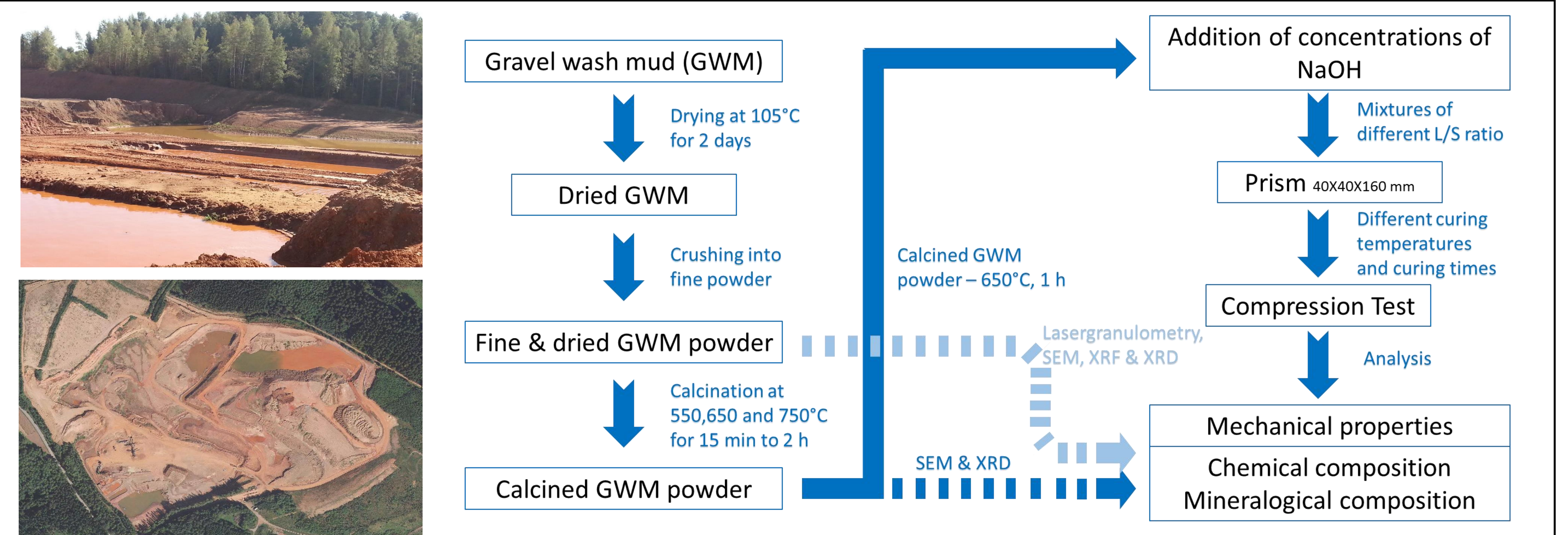
Mechanical characterisation of alkali activated clay - based geopolymer binder made out of gravel wash mud (GWM)



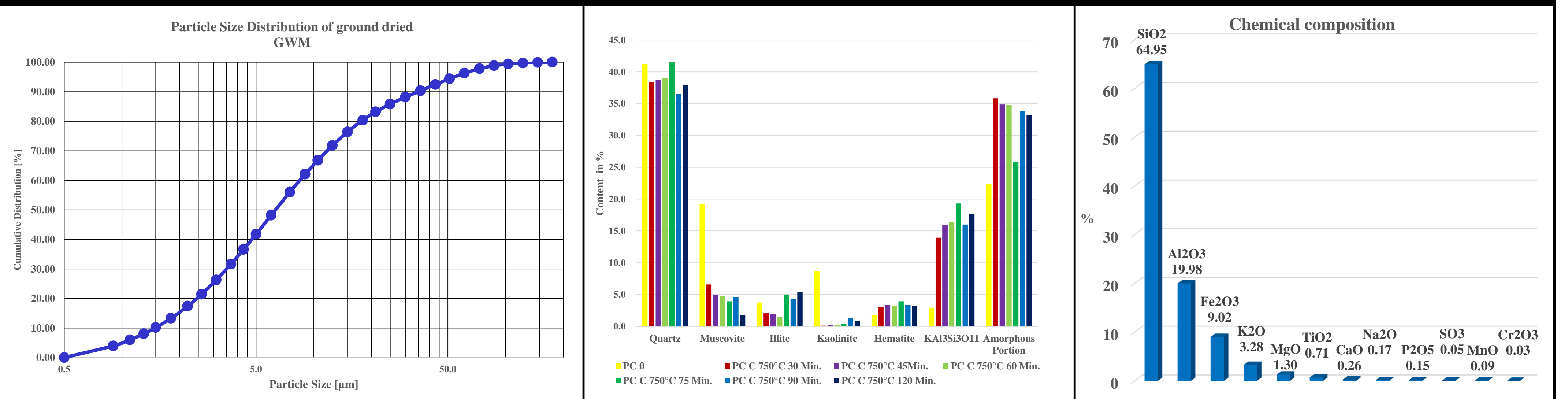
Introduction

One of the most promising cement alternatives are geopolymer cements. The term “geopolymer” was mentioned for the first time by Davidovits and classifies all forms of inorganic polymeric material synthesized by chemical reaction of aluminosilicates and an alkaline activating solution. The production of geopolymer binder comprises in two main procedures: calcination and geopolymerisation. The synthesized geopolymer shows interesting characteristics like good mechanical properties, high strength and good durability.

Experimental program



Results



Analysis - PC_Uni:		
X ₁₀ =	1.48 μm	
X ₁₆ =	2.06 μm	
X ₅₀ =	6.35 μm	
X ₈₄ =	22.27 μm	D' = 10.76 μm
X ₉₀ =	35.1 μm	n = 0.86
X ₉₉ =	92.28 μm	C _{opt} = 11.34 %
SMD =	3.66 μm	
VMD =	1.64 μm	
S _v =	13.3 m ² /cm ³	
S _m =	5480.9 cm ² /g	