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&

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Performance-based specifications for geopolymer concrete in chloride environment

Geopolymer Concrete (GC) is the result of the reaction of materials containing aluminosilicates such as fly ash and Ground Granulated Blast Furnace Slag with alkalis to produce an inorganic polymer binder. GC is Portland cement free low embodied carbon concrete. GC has been under intensive research around the world during the last 15 years. The major barriers to GC widespread adoption by the construction industry are concerns about durability and exclusion from current standards. Chemical reactions characterizing alkali-activated binder systems differ drastically from conventional hydration process of Portland cement. Thus, the mechanisms by which concrete achieves potential durability are different between the two types of binders. As a result, testing methods and performance-based requirements for geopolymer must be developed to be incorporated in a performance-based standard. Testing methods presented will be looking at the risk of alkali leaching and efflorescence, the passivity of reinforcement and chloride induced steel reinforcement corrosion in GC concrete.

Biography

Arnaud Castel is an Associate Professor in the School of Civil and Environmental Engineering at the University of New South Wales, Australia. He was graduated with his PhD in 2000 at the University of Toulouse in France where he has carried out his early career before his relocation to UNSW Australia in 2012. He has co-authored/authored 150 publications, including 70 journal papers with a current Scopus H-index of 21 and more than 1500 citations. Since his relocation to UNSW, he has secured over AU\$1,500,000 research funds including ARC Discovery projects, ARC Linkage projects, and CRC projects.

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