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Abstract: Geopolymers have much higher drying shrinkage than Portland cement based composites Shrinkage performance is important property for reinforced concrete composites just because a high shrinkage performance is associated to cracking tendency that leads to future durability problems. This paper provides results experimental and numerical investigations of fly ash based geopolymeric mortars reinforced with short hybrid polymeric fibres (SHPF). The results show that SHPF improved the flexural performance, while reducing the compressive strength and flexural stiffness of geopolymeric mortars. The addition of 0.8% SHPF increased about two times fracture energy and about 50% tensile strength. The adopted constitutive model well-captured the flexural performance of the tested beams.

Keywords: Waste reuse; geopolymeric mortars; fly ash; flexural; toughness; constitutive model

1. Introduction