

## Abstract

This paper presents the fresh and hardened properties of self-compacting concrete (SCC) containing plastic bag waste fibers (PBWF). Fibers were prepared by recycling waste material such as, plastic bag. Fourteen mixtures of SCC with 0.40 of water/cement ratio were studied, twelve SCC mixtures with plastic bag waste fiber (WFSCC) by varying the length of fibers (2, 4 and 6 cm) with different levels of incorporation (1, 3, 5 and 7 kg/m<sup>3</sup>) and two other mixtures, one with 1 kg/m<sup>3</sup> of polypropylene fibers (PFSCC) and another without fiber as reference (RSCC). Slump flow, L-box, and sieve stability were performed to assess the fresh properties of the prepared mixtures. Compressive strength, splitting tensile strength and flexural strength of the concrete were determined for the hardened properties. Test results show that mixtures based on PBWF with a length of 2 cm, met the criteria of self-compactability (evaluated by slump flow diameter, L-box and sieve stability test) regardless of the fibers content. The obtained results are very interesting, suggesting a possible use of PBWF for structural reinforcement of SCC, the presence of this fibers in concrete delaying the location of microcracks. Although, the incorporation of PBWF has not a significant effect on the compressive and flexural strengths, it has a important effect on the split tensile strength value at 28 days. The improvement varies from 4% to 74%, it depends on the amount of fibers, and it is not affected by the length of PBWF.