

## **Mechanical Behavior of Concrete Containing One Type and Hybrid Fibers**

This research work studies the effect of the addition glass and Polypropylene hybrid fibers on concrete properties. Straight glass fibers (GF) with 14 mm length 0.013mm diameter, and Polypropylene fibers (PF) with 12mm length and 0.018mm diameter were used. Each type was used separate by 0.2, 0.4 and 0.6% form cement content to produce six mixes. Three mixes were produced with the combination of glass and polypropylene fibers by (0.1%+0.1%), (0.2%+0.2%), and (0.3%+0.3%) form cement content. The last one is control mix without fibers. Beams were used for flexural test. The depth of fibers mix in beams were taken one-third, two-third. and full from the total beams depth. The experimental program was carried out to cover the various properties of fresh and hardened concrete. Ten design mixes with different content of fibers were needed for the parametric study. Finally, the experimental results show that using hybrid fibers with concrete are increased the properties of concrete (Compressive strength, split tensile strength, and flexural strength) and depending on the fibers ratio used compared to control mix. The increasing of fibers content is improved the properties of concrete. The difference between flexural strength for the three fibers depth is small, so the one-third fibers content mix is the economic. The improvement on the properties of concrete due to polypropylene fibers is greater than glass fibers.