# EFFECT OF ADDING THE PLASTIC WASTE AS FIBERS ON MECHANICAL PROPERTIES OF CONCRETE

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Abstract:

This study investigated the effect of adding the plastic waste resulting from cutting the bottles by hand as fibers in the concrete mixture with long of (3cm) and width of (0.3cm) with and without using of silica fume (SF) with (5 and 10)% of cement weight. Fibers of plastic waste added as a percentage of concrete volume. These percentages were (0.5 and 1)%. Reference concrete mix was also made for comparative purposes. Mechanical properties were tested included compressive and splitting tensile strength. Results showed that, there was an increasing in splitting tensile strength of the mixes containing plastic fibers with (SF) (5)% more mixes included plastic fiber with (SF) equal to 1% of cement weight. At 28 days according to reference concrete , the increasing percentages were (9%, 17.67%) for (0.5%,1%) plastic fibers. (8%, 15%) for plastic fibers with (SF) equal to (5%) and (5%, 3.34%) for plastic fibers with (10%) (SF). There were a decreasing in compressive strength for mixes containing plastic fibers and this decreasing increased with the percentage of plastic fibers. According to the reference concrete the decreasing values of compressive strength at (28 days) were (9.82%, 22.12%) for (0.5%, 1%) plastic fibers, (5.72%, 17.08%) for (0.5%, 1%) plastic fibers with (5%) (SF) and (6.78%, 19.04%) for plastic fibers (0.5%, 1%) with (SF) (10%) respectively