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# **PROPERTIES OF LIGHTWEIGHT CONCRETE PREPARED WITH WASTE POLYSTYRENE AND FLY ASH**

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**ABSTRACT:** This paper presents the results of an experimental work on the effects of waste Polystyrene based lightweight aggregate called Stabilised Polystyrene (SPS) and fly ash in concrete. The composite aggregate was formed with 70% waste polystyrene which was shredded to different sizes, 10% of a natural material to improve the resistance to segregation and 20% Portland cement. Nine different mixtures with water to binder ratio (W/B) of 0.8 with varying SPS content ratios of 0, 60 and 100% as partial replacement of natural fine aggregate by equivalent volume at the fly ash replacement levels of 0, 20 and 40% with Portland cement were prepared and tested. The properties of concrete investigated in this paper were compressive strength, ultrasonic pulse velocity (UPV) and total water absorption (WA). The results indicate that there is a decrease in compressive strength and UPV and an increase in water absorption with increasing amounts of SPS and fly ash in concrete.