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## WASTE LIQUID CRYSTAL DISPLAYS (LCDS) GLASS AS AGGREGATE SUBSTITUTE IN CONCRETE PRODUCTS

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### Abstract

The increasing amount of waste electrical and electronic equipment (WEEE) is one of today's concerning problems. Due to every day's increasing quantities of WEEE, different methods have been developed to achieve the most efficient extraction and usage of valuable components such as metals, plastics, glass, etc. In this paper, concrete C20/25 was prepared with waste liquid crystal display (LCD) glass used as a replacement for fine aggregate in percentages 1%, 5% and 10%. For comparison purposes concrete with replacement level of 0% was prepared. First set of replacements was done with grinded LCDs ( $d \leq 10$  mm), while in other set were used LCD glass residues after metal extraction. Properties of fresh and hardened concrete were observed. This research indicated higher values of compressive and tensile strength of concrete with treated LCDs as opposed to concrete with untreated LCD for all replacement percentages, e.g. for 1% replacement compressive strength was 33.4MPa as opposed to 35.53MPa, and for tensile splitting strength 2.56MPa opposed to 3.75MPa in concrete with 1% replacement with treated LCDs. Results indicate 1% and 5% are appropriate percentages of replacement.

*Key words:* circular economy, concrete, recycling, waste liquid crystal displays

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