

THE MECHANICAL PROPERTIES OF FLYASH FILLED POLYSTYRENE: USING SURFACE MODIFICATIONS TO TUNE MECHANICAL PROPERTIES

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ABSTRACT

Flyash was added as a low-cost, high-volume percent filler to polystyrene in order to develop a means of recycling flyash. The impact strength of the flyash/polystyrene composite decreased with increasing flyash content. The impact strength of the composite also decreased with increasing flyash particle size. Fracture surface images of the composite samples indicated that fracture was occurring at the flyash /polystyrene interface. The flyash/polystyrene interface could be strengthened by the addition of a coupling agent, LICA 38. With the addition of 17 wt% (wt. flyash / wt. compsite) flyash and 0.5% LICA 38, the impact strength of the composite could be restored to the pure polystyrene value while reducing the material costs by 13%.

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