

A preliminary investigation on the geotechnical properties of blended solid wastes as synthetic fill material

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Abstrak

This study investigated the possibility of developing a synthetic fill material by combining industrial waste materials, thus, integrating the properties of cohesion and friction as a replacement for natural soil. Biosolids and steel slag were selected for proportioning of the synthetic fill material. They were blended in different proportions and the geotechnical properties of the various blends were investigated to determine the strength and bearing of the blended synthetic material for fill applications. The results of the investigation were encouraging with the index properties of the blends better than those of biosolids. It was found that 25% to 40% steel slag blending produced the maximum strength and bearing. The investigation revealed that blending of industrial waste materials has the potential to perform the function of a synthetic fill material in road embankments and backfills. However, further studies are recommended to investigate its long term compressibility and permeability and further improvement of bearing to meet local standards.