

**A LABORATORY INVESTIGATION ON THE
CHARACTERISTICS OF CEMENT-BITUMEN COMPOSITES
FOR SEMI-FLEXIBLE PAVEMENT SURFACING**

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ABSTRACT

Semi-flexible pavement surfacing consists of a composite pavement that utilizes the porous pavement structure of the flexible bituminous pavement which is subsequently grouted with an appropriate cementitious material. The study covers two main scopes, namely to determine alternative materials in manufacturing the semi-flexible pavement which involves binder selection and acceptable cementitious grouts as well as the properties of the grouted pavement mixes. The cement slurries with high workability were designed to infiltrate through the open graded asphalt skeletons and the voids, filled up under the influence of gravitational action and attained high strength at 28 days. The open graded asphalt skeletons were designed to achieve a high void content (25%-30%) before being infiltrated with cementitious slurries in order to produce sufficient performance of grouted pavement mixes. A range of mechanical property tests including workability, porosity, compressive strength, flexural strength, indirect tensile stiffness modulus and abrasion were carried out to examine the properties of the grout, open graded asphalt skeletons and the grouted pavement mixes. Several prototypes of the grouted pavement mixes were designed in order to determine the most acceptable product that fulfil the requirements needed in manufacturing the semi-flexible pavement surfacing.

KEY WORDS: Semi-flexible pavement, grouts, cement-bitumen composites.