

ABSTRACT

Modification of Trinidad lake asphalt by fluxants
blending and air blowing

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Despite worldwide markets for Trinidad lake asphalt as a superior road pavement and roofing material, it generates little return for Trinidad and Tobago because it is sold essentially in its raw form. The aim of this project was to investigate modification of Trinidad lake asphalt by blending and air blowing to give more specialised products with value added at source rather than by the foreign consumer.

The blending studies showed that the penetration and softening point are determined by the fluidity and base of the fluxant used. In addition, the base of the fluxant was seen to affect the temperature-susceptibility, SP/Pen relationship, ductility and stability. Application of multiple regression revealed that the penetration and softening point of the blends can be equated to the proportion and characteristics of the fluxant.

The air blowing studies showed that although TLA and a local bitumen cannot be directly air blown to achieve the desired standards, feedstocks compounded with either of these components and the paraffinic-base

fluxants can be so processed. However, as for the blending process, the more paraffinic-base fluxants produced the better SP/Pen relationships, penetration indices and temperature-susceptibilities but lower ductilities and stabilities.

Where the air blown product had an inferior SP/Pen relationship it was found that back-blending could be used to enhance this property.

A comparative investigation of the durability of the new ASTM Type IV materials by accelerated weathering showed that they had significantly lower durability than the controls.

Finally, it was shown that changes in molecular weight distribution of blended, air blown and back-blended asphalts could be correlated to changes in the physical properties of the materials.

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