BINDER CONTENT DETERMINATION OF MIXTURES WITH ABSORBENT AGGREGATES BY IGNITION AND EXTRACTION METHOD

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ABSTRACT
Binder content is one of the most important factors affecting the performance of a bituminous mix. A precise and valid determination of binder content ensures a precise and valid monitoring of the production. Two methods are mainly used for the determination of binder content: the extraction and the ignition method.

This study examines the effect of aggregate absorption in the determination of binder content by the above mentioned methods. Two types of aggregates were used: almost no absorptive limestone and absorptive rhyolite aggregates. From each type of aggregates three aggregate sizes were used: 0/4mm, 2/6,3mm and 6,3/14mm. For each aggregate size different pre-selected binder contents were used. The type of binder was selected to be a 50/70 penetration grade bitumen.

Additionally, binder determination was carried out on mixtures taken by coring on site. The bituminous mixture was a semi-open asphalt concrete (void content 11% to 13%) with the same rhyolite aggregate.

On laboratory produced mixtures both methods, when limestone aggregates were used, gave similar binder contents to the pre-selected values. When rhyolite aggregates were used only the ignition method gave similar results. Binder determination results obtained from cores were significantly different between the two methods.

The effect of ignition to the aggregate gradation of the three sizes used was also examined. The results showed that there is no statistically significant difference between gradations derived from extraction and from ignition.

KEY WORDS: Binder Content, Extraction method, Ignition method