

DEDICATION

TO MY FAMILY & TEACHERS

Notation

HMA	Hot mix asphalt
VCA	Void in coarse aggregate
PCS	Primary control sieve
DRC	Dry rodded condition
NMPS	Nominal maximum particle size
VMA	Voids in mineral aggregate
CA	Coarse aggregate
FA	Fine aggregate
FAf Ratio	Fine aggregate fine Ratio
Gmb	Bulk specific gravity of aggregate
Gmm	Maximum specific gravity of paving mixture
Gse	Effective specific gravity of aggregate
Pbe	Effective asphalt content, percent by total weight of mix
Pba	Asphalt content, percent by total weight of aggregate
Ps	Aggregate content percent by total weight of aggregate,
Pb	Asphalt, content by weight of aggregate
Gb	Specific gravity of asphalt
Vol	Volume of specimen
Va	Air voids in compacted mixture
B.SG	Bulk specific gravity
M.St	Measured stability
C.St	Corrected stability
OWS	Omdurman West source
JTS	Jubal Toria source
AS	Alselate source

مستخلص

بالرغم من انه هناك حاجة موجهات لاستخدام الخلطات الاسفلتية الخشنة والناعمة، فإن المصممون مايزالون يعانون عند تصميم الخلطات الأسفلتية وعليهم الالتزام باجراء العديد من الخلطات التجريبية لاختيار الخليط الركامي الأصح.

لذا لأن هناك حاجة ماسة لاستخدام طريقة تسرع بعملية التصميم وتساعد في فهم الخلطة الاسفلتية التي يتم انتاجها.

طورت هذه الطريقة من قبل روبرت بيلى من قسم النقل في اوائل الثمانيات وهي وسيلة عملية يمكن استخدامها بطريقة ناجحة لتطوير وتحليل الخلطة الاسفلتية الساخنة في المختبر والحقل.

وهي تعتبر نقطة بداية جيدة لتصميم الخلطة الاسفلتية وهي وسيلة تساعد في ضبطها بالخلاط لتحسين الفراغات الهوائية air voids والفراغات المملوءة بالركام (VMA) وقابليتها للتشغيل، سواء تم استخدام طريقة مارشال أو طريقة سيوبريف.

يصف هذا البحث طريقة بيلى بالتفصيل مستعيناً بأمثلة حقيقية وعملية لعينات تم اخذها من منطقة جبل طورية ومنطقة السليت ومنطقة غرب امدرمان لمساعدة المصممين والمقاولين لفهم الخلائط الأسفلتية الساخنة بصورة احسن.

ABSTRACT

While there has been some guidance on the use of coarse and fine mixes, at this time, designers are still struggling with mix designs and have to conduct numerous trials to select proper aggregate blend. A better way to speed up the process and understand the mixes that are being produced is needed.

The Bailey method was originally developed by Robert D. Bailey of the Illinon department of transportation in the early 1980s. It is practical tool that has been successfully utilized for developing and analyzing hot asphalt in the lab field.

The Bailey provide a good starting point for mix design and valuable aid when making adjustments at the plant to improve air voids, VMA and the overall workability of the mix whether you are using Marshal or superpave.

This describes the methodology in detail with some real life examples for samples carried out from JablToria, Alselate area and Omdurman west to help mix designers and contractors better understand the hot asphalt mixtures.

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