

عنوان مقاله:

Effects of Compactor Types on Aggregate Orientation of Asphalt Mixtures

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نویسندگان:

m.o hamzah - School of Civil Engineering, Universiti Sains Malaysia, Engineering Campus, 14300 Nibong Tebal, Pulau Pinang, Malaysia

w.c von - Geoconsult Asia Singapore PTE LTD, No. 5 Jalan Kilang Barat, #08-06 Petro Centre, Singapore 151349

n.h abdullah - School of Civil Engineering, Universiti Sains Malaysia, Engineering Campus, 14300 Nibong Tebal, Pulau Pinang, Malaysia

خلاصه مقاله:

More than 90% of Malaysian roads are constructed using asphaltic concrete. However, previous investigations of asphaltic concrete have mainly concentrated on the macroscopic properties of the composite materials based on the assumption that the mixtures are homogeneous and isotropic. This paper applies a digital image processing technique to compare the orientations of coarse aggregate particles in asphaltic concrete compacted using Marshall, Servopac and Presbox compactors. Aggregate orientation was measured in terms of a vector magnitude and the average major axis angle. The average major axis angle of all compactors are less than 45° indicating that aggregate orientation in all of the prepared specimens have the preferential orientation along the horizontal plane. The vector magnitude results of the Presbox compacted sample is the least, indicating the presence of the most randomly oriented aggregate. However, the Servopac specimens have more randomly oriented aggregate compared to Marshall specimens. An ANOVA analysis for vector magnitude indicates that only compaction method, not Geometrically Cubical Shaped (GCS) proportion, has a significant impact on aggregate orientation randomness

کلمات کلیدی:

Digital Image Processing, Aggregate Orientation, Geometrically Cubical Shape Aggregate

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