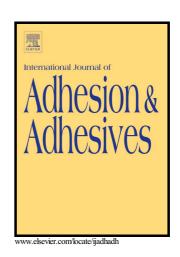
## Author's Accepted Manuscript

 $\lambda$ Evaluation of the shear characteristics of steel-asphalt interface by a direct shear test method

Bo Yao, Fangchao Li, Xiao Wang, Gang Cheng



PII: S0143-7496(16)30018-5

DOI: http://dx.doi.org/10.1016/j.ijadhadh.2016.02.005

Reference: JAAD1795

To appear in: International Journal of Adhesion and Adhesives

Received date: 20 October 2014 Accepted date: 8 February 2016

Cite this article as: Bo Yao, Fangchao Li, Xiao Wang and Gang Cheng λEvaluation of the shear characteristics of steel-asphalt interface by a direct sheat test method, *International Journal of Adhesion and Adhesives* http://dx.doi.org/10.1016/j.ijadhadh.2016.02.005

This is a PDF file of an unedited manuscript that has been accepted fo publication. As a service to our customers we are providing this early version o the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

Evaluation of the shear characteristics of steel-asphalt interface by a direct shear test method

**ACCEPTED MANUSCRIPT** 

Bo Yao a,\*, Fangchao Li a, Xiao Wang b, Gang Cheng b

<sup>a</sup> Department of Civil Engineering, School of Science, Nanjing University of Science and Technology, 200

Xiaolingwei, Naniing 210094, China

<sup>b</sup> School of Transportation, Southeast University, 35 Jinxianghe Road, Nanjing 210096, China

\*Corresponding author.

Tel./fax: +86 25 87794368

E-mail address: blade@seu.edu.cn (B. Yao).

**ABSTRACT** 

Shear characteristics of steel-asphalt interface under the influences of temperature, normal stress level

and tack coat material were investigated. The direct shear tests were conducted on composite specimens with

epoxy asphalt (EA) and polymer modified asphalt (PMA) tack coat materials at temperatures of 25 and 60°C

and normal stress levels of 0, 0.2, 0.4, and 0.7 MPa for each temperature. Results show that the failure modes

include adhesive failure at the primer-tack coat interface and material failure of asphalt concrete.

Steel-asphalt interface shows strain softening behavior until it reaches the sliding state. The shear strength

and the shear reaction modulus increase with decreasing temperature and increasing normal stress levels. The

specimens with EA tack coat provides much higher interface shear strengths than those with PMA tack coat

at 25 and 60°C. In addition, the failure envelopes of the shear strength and residual shear strength were

obtained for combinations of tack coat materials and temperature conditions based on the Coulomb failure

law.

Keywords: Steel bridge deck, Asphalt tack coat, Interface, Shear characteristics, Direct shear test

1

## Download English Version:

## https://daneshyari.com/en/article/7171058

Download Persian Version:

https://daneshyari.com/article/7171058

<u>Daneshyari.com</u>