VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT REPORT ON

"LABORATORY COMPARATIVE STUDY ON THE PERFORMANCE OF PLAIN BITUMEN AND CRUMB RUBBER MODIFIED BITUMEN ON DBM GRADE 2"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

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Certificate

This is to certify that following students

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Have submitted Project Report on **"LABORATORY COMPARATIVE STUDY ON THE PERFORMANCE OF PLAIN BITUMEN AND CRUMB RUBBER MODIFIED BITUMEN ON DBM GRADE 2"** for VIII[th] semester B.E in Civil Engineering during the academic year 2018 -19. The Project has been approved as it satisfies the academic requirements in report of Project work prescribed by Visvesvaraya Technological University for the award of degree in Bachelor of Engineering Degree.

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ABSTRACT

The abundance and increase of waste tyre disposal is a serious problem that leads to environmental pollution. Crumb rubber obtained from shredding of those scrap tires has been proven to enhance the properties of plain bitumen. Use of crumb rubber leads to improve pavement life, driving comfort and low maintenance. The rheology of CRMB depends on internal factors such as crumb rubber quantity, type, particle size, source and pure bitumen composition, and external factors such as the mixing time, temperature, and also the mixing process.

In the present study, the physical properties of aggregates and bitumen were determined. Routhfuch's method is carried out to obtain proportion of aggregate mixing and Marshall Stability method is adopted for mix design. Then for the neat bitumen, Marshall Tests were conducted to obtain the OBC for DBM Grade II. The OBC of 5.2% is obtained for the mix. The present study aims in investigating the experimental performance of the bitumen modified with 15% and 18% of crumb rubber mixed with 500g of bitumen i.e. (75g and 90g crumb rubber) is used for preparation of CRMB .Two categories of size of crumb rubber was used, having sieve size (3.35 mm–2.36 mm) and (2.36mm – 1.18mm). Also we prepared specimen by varying quantity of crumb rubber by weight of bitumen i.e. 14% and 13% (8.7g and 8.1g). Penetration tests and Softening point tests were performed on the modified bitumen using various sizes of crumb rubber modified bitumen. For the moulds prepared with CRMB and with neat bitumen, a comparative study is made among the modified bitumen samples using the various sizes of Crumb Rubber particles and the best size is suggested for the modification to obtain best results.