

## THE PERFORMANCE OF BITUMEN MASTICS WITH THE ADDITION OF FLY ASH

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### *ABSTRACT*

There are two potential uses of fly ash in asphalt mixtures: as a replacement of stone filler, or as a substitution for a certain percentage of bitumen. This paper focuses on the second option with the objective to investigate the interaction between fly ash and bitumen. Oscillatory tests were performed using a Dynamic Shear Rheometer (DSR) over a range of temperatures and frequencies, on original, short-term aged and long-term aged samples of fly ash-bitumen mastics. Additionally, testing using a Bending Beam Rheometer (BBR) was performed to assess resistance to low temperature cracking which is critical for modified bitumen with increased modulus. The addition of fly ash to bitumen improves the performance of the mastics and increases the viscosity and complex modulus at high temperatures and low frequencies, but has a negative effect on the resistance to cracking at low temperatures, thus increasing the low performance grade classification.