# Effect of Polypropylene as an Additive on Crumb Rubber Modified Bitumen for the Construction of Roads

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## Abstract:

In recent years, crumb rubber-modified bitumen for road construction has gained importance due to its durability, flexibility, and resistance to harsh climatic conditions. The addition of polypropylene to crumb rubber-modified bitumen enhances road performance, increases longevity, and reduces maintenance costs. In this work, the effect of polypropylene as an additive for crumb rubber-modified bitumen was examined. The Dynamic Shear Rheometer (DSR) test showed a High Complex Modulus and a Low Phase Angle, indicating effective cracking resistance due to the addition of polypropylene. A Bending Beam Rheometer (BBR) test was conducted to evaluate the flexural stiffness and relaxation properties at low temperatures, demonstrating the ability to resist cracking.

## Keywords:

Polypropylene, Crumb Rubber Modified Bitumen, Crack Prevention, Rutting, Bending Beam Rheometer.