

Development of Eco-Friendly Bio-Oil-Bitumen from Local Materials

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The substantial increases in bitumen pricing due to increasing in demand for petroleum derived products in line with decreasing world crude resources has suggested that all industries, including the asphalt pavement industry, should be exploring economically, socially, and environmentally sustainable approaches to either to enhance the performance of asphalt mixture using some recycled materials or developing eco-friendly asphalt mixture. The current study presents novel development of eco-friendly bio-oil-bitumen produced using some local materials. Two bitumen sources 40-50 Pen were used, Dora and Nasiriyah, obtained from Dora and Nasiriyah refineries. Waste cooking oil was collected from local households and cafeterias without financial cost. Methanol, Sulfuric acid (as a catalyst), and zeolite were considered in the development process. Initial results highlighted that the modified bio-oil-bitumen has shown superior performance compared to that of traditional bitumen. The current successful development has an encouragement to further characterization of such production.