

ABSTRACT

This research investigates the properties of bitumen modified with wastes such as Waste Cooking Oil (WCO) and Mangalore tiles for applications in flexible pavements. Base bitumen was partially replaced with WCO at 5 % and 6% replacement level to develop WCO-modified bitumen. Mangalore tiles was then added at 5 %, 10 % and 15 % of binder weight to the WCO-modified bitumen to form WCO-Mangalore tiles modified bitumen. Empirical tests such as specific gravity, penetration and softening point were investigated to determine the behaviour of the modified bitumen. It was found that the replacement of bitumen with WCO reduces the specific gravity and softening point of the resulting binder while the penetration is increased. However, the addition of Mangalore tiles reduces the penetration and increases the specific gravity and softening point of the binder. Mangalore tiles added at 5 %, 10 % and 15% to the WCO modified bitumen results in lower penetration and higher specific gravity and softening point when compared to the base bitumen. It can be concluded that incorporating WCO blended with Mangalore tiles in bituminous results in increased performance.