

The antioxidant effect of grape pomace in asphalt binder

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Abstract

Asphalt binder ages on time mainly due to oxidation during mixing, and in service along the years. The aging effect will diminish material viscoelastic properties until it becomes brittle. Once asphalt binder reaches its brittle stage, the material will reduce its capability to withstand repeated traffic loads while in service, (fatigue). There are four methods to enhance fatigue life of an asphalt pavement; among these methods is the use of antioxidants. The work presented in this paper summarises the research work where grape pomace residue has been used as an antioxidant. The research objectives were to evaluate and understand the antioxidant effect of this additive. Consistency and rheological tests were used to prove the relative effect for reducing aging when adding grape pomace residue. It was possible to demonstrate the antioxidant properties of the additive but at the same time, it was found that the small solid undissolved particles of the additive would produce a secondary effect that will make it more difficult to isolate the pure antioxidant effect.