

Influence of Waste Cork with Thinner on the Rheological Properties of Asphalt

ABSTRACT

Over the last two decades, the rapid and continued deterioration of the transportation network has been regarded as a major issue. There are many measures that can be taken to reduce this deterioration and improve road specifications, including improving road design, using higher quality materials, and using more efficient construction methods. This study is concerned with three principles: including investigating the impact of using waste paste on the rheological properties of bitumen; the environmental pollution that is a global problem; and the economic benefits as a result of the reusing of waste materials such as corks to produce new reusable materials like Modified-Asphalt. In this research, cork has been melted by thinner and mixed with asphalt to get a good paste with weight percentages of 1%, 3%, 5%, and 7%. After conducting the necessary tests on the samples, it was found that the addition of waste paste to virgin bitumen has softened the bitumen by decreasing the hardness and adhesiveness of the bitumen by increasing penetration with increasing cork paste content. The findings show that the current procedure can be used in cold regions because it requires less hard asphalt than that used in hot regions. It can also be used with natural asphalt, like natural rock asphalt, in various percent to give asphalt with suitable properties for use in roofing and paving roads.