

The Feasibility of Using Plastic Wastes to Improve the Properties of Natural Asphalt

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Abstract

The industrial importance and application of asphalt in different fields such as pavement and roofing, etc. was a certain reason for this study. Many improvement processes have been applied in this research on Hit natural asphalt HNA from Hit city in Iraq to use it for industrial purposes. The HNA was modified by using solid plastic wastes (disposed plastic cans). Recycled wastes are used to achieve two aims: 1 in HNA improvement and 2 ridding the environment from the accumulation of plastic waste that being classified as contaminated materials. Modification process involved the addition of Polyvinyl Chloride (PVC) powder as a recycled waste to improve the properties of HNA . An old PVC pipes were crushed and transformed to powder and finally added to HNA in different ratios of PVC: HNA, (10, 20 and 30). The physical characterization of the new mixture was analyzed using penetration and softening point tests while the chemical properties have been characterized using (UV) and (IR) waves tests to study the changes in the rheological properties. The results revealed the economic importance of using recycled (PVC) powder to improve the properties of HNA and to reduce the adverse effect of these wastes on environment.