

Abstract Details

Title: An Experimental Study on the Effect of Use of Waste Plastic in Flexible Pavement

Authors: Sachin and Jaswant Singh

Abstract: Solid waste management is the thrust area. Of this various waste materials, plastic waste, tyre waste and municipal solid waste are of great concern. On the other side, the road traffic is increasing. The traffic intensity is increasing. The load bearing capacities of the road are to be increased. Our present work is helping to take care of both these aspects. Plastic waste, consisting of carry bags, cups and thermocols can be used as a coating over aggregate and this coated stone can be used for road construction. By this process a road of 1 Km length and 3.375M width of single lane can consumes 10, 00000 carry bags and the road strength is increased by 100% and there is no pot hole formation. Secondly the waste tyres are powdered and the powder is blended with bitumen and this blend is used along with plastic coated aggregate. The mix polymer coated aggregate and tyre modified bitumen have shown higher strength. Use of this mix for road construction helps to use both plastics waste and tyre waste. Once the plastic waste is separated from municipal solid waste, the organic matter can be converted into manure and used. Our project will discuss in detail the process and its successful applications. The quantum of plastic waste in municipal solid waste (MSW) is increasing due to increase in population, urbanization, development activities and changes in life style, which leading widespread littering on the landscape. Thus disposal of waste plastic is a menace and become a serious problem globally due to their non-biodegradability and unaesthetic view. Since these are not disposed scientifically & possibility to create ground and water pollution. This waste plastic partially replaced the conventional material to improve desired mechanical characteristics for particular road mix. In the present project developed techniques to use plastic waste for construction purpose of roads and flexible pavements has reviewed. In conventional road making process bitumen is used as binder. Such bitumen can be modified with waste plastic pieces and bitumen mix is made, which can be used as a top layer coat of flexible pavement. This waste plastic modified bitumen mix show better binding property, stability, density and more water resistance.

Keywords: Waste Plastic, Pavement, mix polymer coated aggregate.