



Experimental Investigation of Modified Asphalt Containing High Density Polyethylene Plastic

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Abstract—The increasing rate of road traffic during the last few decades and insufficient maintenance has severely deteriorated the road network in Pakistan. Apart from this, the plastic waste disposal has become a serious problem in Pakistan. Research conducted at various institutions across the world indicates that plastic wastes can be used in asphaltting of roads. The polymer has already been used as a modifier for asphalt mixes. In this research, High Density Polyethylene (HDPE) is used as an additive using Dry process in asphalt mixture to investigate its potential in enhancing the asphalt mixture properties and determining the best proportion. The polymer was introduced to the mixture in granular form, and four proportions of HDPE with different ratios of binder i.e. 0%, 5%, 10%, and 15% were selected to be investigated. Stability, flow, optimum asphalt content, voids in mineral aggregates, voids filled with asphalt were investigated. The results of this study indicate that the utilization of HDPE increased the stability, reduced the density and slightly reduced the air voids and the voids in mineral aggregate.

Keywords— Construction Industry, Asphalt, HDPE, air Voids