

Retro-Reflectivity and Diffuse Reflectivity Degradation of Thermoplastic Pavement Marking: A Case Study on Asphaltic Road in Thailand

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Abstract : Pavement marking is an essential task of road construction and maintenance. One of several benefits of pavement markings has been used to provide information about road alignment and road conditions ahead. In some cases, retro-reflectivity of road marking at night may not meet the standard. This degradation may be caused by internal factors such as the size of glass beads and the number of glass beads or external factors such as traffic volume, lane width, vehicle weight, and so on. This research aims to investigate the reflective efficiency of thermoplastic road marking with the glass beads. Ratios of glass beads, ranging from 359 to 553 grams per square meter on an asphaltic concrete, have been tested. The reflective efficiency data was collected at the beginning and at a specific time interval for a total of 8 months. It was found that the difference in glass beads quantity affects the rate of retro-reflectivity but does not affect the diffuse reflectivity. It was also found that other factors affect retro-reflectivity, such as duration, the position of road marking, traffic density, the quantity of glass beads, and dirt coating on top. The dirt coating on top is the most crucial factor that deteriorating retro-reflectivity.

Keywords : thermoplastic pavement marking, retro-reflectivity, diffuse reflectivity, asphalt concrete

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