

Nighttime Use of Pavement Delineation Materials

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ABRIDGMENT

♦MANY pavement marking materials in common use lose their effectiveness to a marked degree during periods of darkness in adverse weather. In this study, ways of improving delineation of roadways under wet and dry conditions by either improving techniques utilizing existing materials or developing new materials and techniques were investigated. Glass beads as used in pavement marking materials are affected by many variables, including their composition, surface treatment, diameter, gradation, rate of application, surface on which they are applied, the depth of imbedment in the binder, orientation of the binder with the light source, refractive index, shape, imperfections, method of application, the type of failure of the binder, and the covering water films encountered during periods of precipitation. Raised reflectorized markers perform in relation to many of the same variables as binders reflectorized with glass beads; however, they represent a different technology and are subject to other external influences.

By taking into consideration the many variables, it is possible to select not one but several techniques for improving the performance of pavement marking materials in the day and night, wet and dry conditions. An attempt has been made to approach the problem of marking pavements in a systematic manner wherein one qualifies the surface to be marked, determines the water film thicknesses to be encountered and then selects one of several marking systems that will perform under the imposed conditions.