A Laboratory Method for Determining the Skidding Resistance of Bituminous Paving Surfaces

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SYNOPSIS*

This paper listed the desirable features that should be included in a laboratory method for adequately determining the skidding resistances of different types of pavement surfaces. It also discussed them in light of past research. The laboratory skid-test apparatus, resulting from an endeavor to incorporate these desirable features into the design, was described. This equipment measures and records the frictional force developed between a 6-inch diameter test specimen and a rubber testing shoe for a relative speed between the two sliding surfaces at the mean radius of the area of contact of approximately 30 mph.

In order to use this skid-test apparatus with some degree of confidence, a field correlation study was performed on 18 different bituminous pavement surfaces. The skidding resistance in the wet condition was first determined for each of the surface types with the passenger car stopping-distance equipment of the Indiana State Highway Department. Then three test specimens were cored from each test site and tested in the laboratory skid-test apparatus. The results of these two methods were compared and, in general, showed good agreement.

Also included was an explanation of the procedure and the associated instrumentation for simulating the wear and polishing effect that a pavement surface receives under the action of traffic. This rather involved

* Reprints of the complete paper, which was published in the 1958 Proceedings of ASTM, may be secured from the Joint Highway Research Project, Civil Engineering Building, Purdue University. Since it has been published elsewhre, it is only summarized here in the interest of economy.

procedure includes kneading the test specimen with conical rollers in order to obtain the proper particle orientation and "polishing" it in both the modified Minitrack and in the skid-test apparatus itself. Sufficient data were included to indicate the progressive decrease in skidding resistance due to certain amounts of "wear," both for aggregates which are highly resistant to polishing and for those which polish readily.