

Introduction

During the past ten years or so there has been a rather concerted drive to change asphalt cement specifications and tests from the old empirical or penetration basis to the newer fundamental unit or viscosity basis.

A materials engineer requires knowledge of the consistency of asphalt cement during mixing, transporting, placing, compaction, and loading under traffic in order to minimize or avoid failures. Knowledge of the consistency under summer temperatures and shear properties under winter temperatures is a requisite to providing durable pavements.

Asphalt cement can go from a liquid during mixing, transporting, and placing to a plastic during compaction and service under traffic, and even to a solid at low service temperatures. Satisfactory performance requires a knowledge of the asphalt consistency under all conditions.

It can be readily seen that all asphalts will not meet all of the performance criteria required and that with asphalts from a wide geographic range available to a single producer there is and has been a need for better methods of characterizing, testing and specifying asphalt cements.

This Symposium on Viscosity Testing of Asphalt and Experience with Viscosity Graded Specifications was organized to bring to the attention of the entire country the latest viscosity testing which, is somewhat regionalized, and the experience gained by a few states which have used viscosity graded asphalt specifications.

Although not intended to be a state of the art, it serves that kind of purpose in these areas which are still somewhat limited in the scope of their applications.

This special technical publication should be of use to those individuals in asphalt testing, to materials engineers or supervisors, and to those concerned with writing specifications.

The information included in this publication illustrates that viscosity testing of asphalts is very much in a stage of transition with a shift from Thin-Film Oven Testing to Rolling Thin-Film Oven Testing, and the small amount of information concerning low-temperature viscosity testing is an indication of the need for more work and better test methods and equipment.

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It also becomes readily apparent that, although much has been said and written on the subject of viscosity graded specifications, there is still only limited experience in their use.

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