
Standard Method of Test for

**Measuring Interfacial Fracture
Energy of Hot-Poured Crack
Sealant Using a Blister Test**

AASHTO Designation: TP 90-16¹

Release: Group 2 (June 2016)



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1. SCOPE

- 1.1. The blister test is used to determine the interfacial fracture energy (IFE) of hot-poured crack sealant at the application temperatures.
- 1.2. The blister test is a fracture test. The objective of the test is to apply tensile forces using hydrostatic pressure to delaminate sealant from a substrate. A thin film of sealant is poured on the top of a substrate (usually aluminum) disk that has a hole at the center. Hydrostatic pressure is applied through this hole at a constant flow rate causing delamination between the sealant film and substrate. Sealant deformation and applied hydrostatic pressure are recorded as a function of time. The amount of energy required to achieve complete delamination is called interfacial fracture energy and can be calculated from the pressure-deformation curve. This energy is considered a measure of bonding potential.
- 1.3. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish and follow appropriate health and safety practices and to determine the applicability of regulatory limitations prior to use.*

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standard:*
- R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
- 2.2. *ASTM Standards:*
- D5167, Standard Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation
 - E1, Standard Specification for ASTM Liquid-in-Glass Thermometers
 - E220, Standard Test Method for Calibration of Thermocouples By Comparison Techniques

3. TERMINOLOGY

- 3.1. *Definitions:*
- 3.1.1. *hot-poured crack sealants*—hot-poured modified asphaltic materials used to seal pavement cracks and joints.
- 3.1.2. *interfacial fracture energy (IFE)*—the energy required to separate bituminous sealant from a substrate.