

# Standard Practice for Selecting and Specifying Crack Sealants for Asphalt Surfaced Pavement

AASHTO Designation: PP22-95<sup>1, 2</sup>

## 1. Scope

1.1 This practice provides guidance for selecting and specifying crack sealants used on asphalt surfaced pavements.

1.2 This practice applies to cold applied thermoplastic sealers, hot applied thermoplastic sealers, and chemically cured thermosetting sealants.

1.3 *This practice may involve hazardous materials, operations, and equipment. It does not purport to address all of the safety problems associated with its use. It is the responsibility of whomever uses this practice to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

### 2.1 AASHTO Standards

|      |                                                                |
|------|----------------------------------------------------------------|
| M20  | Specification for Penetration Graded Asphalt Cement            |
| M81  | Cut-Back Asphalt (Rapid-Curing Type)                           |
| M82  | Cut-Back Asphalt (Medium-Curing Type)                          |
| M140 | Emulsified Asphalt                                             |
| M173 | Concrete Joint-Sealer, Hot-Poured Elastic Type                 |
| M208 | Cationic Emulsified Asphalt                                    |
| M226 | Specification for Viscosity Graded Asphalt Cement              |
| M301 | Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements |
| MP1  | Specification for Performance Graded Asphalt Binder            |

PP20 Standard Practice for Evaluating the Performance of Crack Sealing Treatments on Asphalt Surface Pavements

### 2.2 ASTM Standards

|       |                                                                                                                                                                                                                      |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C679  | Test Method for Tack Free Time of Elastomeric-Type Joint Sealants                                                                                                                                                    |
| D412  | Test Method for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomeric-Tension                                                                                                                    |
| D1475 | Test Method for Density of Paint, Varnish, Lacquer, and Related Products                                                                                                                                             |
| D2026 | Specification for Cutback Asphalt (Slow-Curing Type)                                                                                                                                                                 |
| D3583 | Methods of Testing Joint Sealant, Hot Applied, Elastomeric Type, for Portland Cement Concrete Pavements, or Joint Sealant, Hot Applied, Elastomeric, Jet-Fuel-Resistant Type, for Portland Cement Concrete Pavements |
| D5078 | Specification for Crack Filler, Hot Applied, for Asphalt Concrete and Portland Cement Concrete Pavements                                                                                                             |

### 2.3 SHRP Documents:

H-348 Asphalt Repair Manual of Practice

### 2.4 Other Designations:

|            |                                                                            |
|------------|----------------------------------------------------------------------------|
| Mil S 8802 | Sealing Compound-Temperature Resistant and High Adhesion-Military Standard |
| CTM 0098   | Test for Skin Over Time, from Dow Corning Corporation                      |
| CTM 0208   | Test for Non Volatile Content, from Dow Corning Corporation                |

<sup>1</sup> This standard is based on SHRP Product H-348.

<sup>2</sup> Approved in December 1995, this provisional standard was first published in June 1996.

### 3. Significance and Use

3.1 This practice provides guidance for selecting and specifying crack sealants intended for use on asphalt surfaced pavements.

3.2 This practice contains materials, testing, and acceptance specifications for cold applied thermoplastic sealers, hot applied thermoplastic sealers, and chemically cured thermosetting sealants. The sealants may be used with or without bond breakers.

3.3 This practice is useful for determination and control of the relative quality of sealants and for obtaining sealants by contract.

### 4. Ordering Information

4.1 When ordering materials, include the following in the purchase contract:

4.1.1 List the material type, and when applicable, the material grade, required from Table 1 (e.g. asphalt cement, AC-20; asphalt rubber; silicone; etc.).

4.1.2 State whether the purchaser will allow alternates that have similar properties as indicated in Table 2, Note 2.

4.1.3 Note any modifications to specifications required in this standard (see Table 1, Note 1).

### 5. Procedure For Selection of Crack Sealant

5.1 Joint sealants for cracks in asphalt surfaced pavements are grouped in three material families and are subgrouped by material type according to their composition and manufacturing process, as shown in Table 1.

5.2 Select a specific family and / or type of sealant based on consideration of the following items:

5.2.1 Type application (i.e., crack filling or crack sealing).

5.2.2 Properties considered important for the application and conditions involved.

5.2.3 General climatic conditions at the site of use.

5.2.4 Climatic conditions anticipated at time of installation.

5.2.5 Highway classification.

5.2.6 Traffic level, percent trucks.

5.2.7 Snow plow use.

5.2.8 Crack characteristics (i.e., width, movement, edge deterioration, etc.)

5.2.9 Crack density.

5.2.10 Desired performance life.

5.2.11 Material placement configuration.

5.2.12 Installation procedures and equipment.

5.2.13 Estimated life cycle cost.

5.2.14 Safety requirements.

5.3 From Table 1 select the family and material type most suited for the application involved.

5.4 From Table 2 select the material type which provides the properties considered most important for the application and conditions involved.

### 6. Material Requirements

6.1 Joint sealants for cracks in asphalt surfaced pavements shall conform to the following specifications.

6.1.1 Liquid asphalt (emulsions or cutbacks).

6.1.1.1 Anionic emulsified asphalt shall meet the requirements of AASHTO M140.

6.1.1.2 Cationic emulsified asphalt shall meet the requirements of AASHTO M208.

6.1.1.3 Cut-back asphalt (rapid-curing) shall meet the requirements of AASHTO M81.