
Standard Specification for
Materials for Emulsified
Asphalt Chip Seals

AASHTO Designation: MP 27-16¹
Release: Group 3 (August 2016)

WORKING DRAFT

AASHTO

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1. SCOPE

- 1.1. A chip seal is an application of emulsified asphalt, followed immediately by an application of a single layer of cover aggregate.
- 1.2. This standard specifies quality requirements for aggregate and emulsified asphalt for chip seals with an option for a fog seal.

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- M 140, Emulsified Asphalt
 - M 208, Cationic Emulsified Asphalt
 - M 316, Polymer-Modified Emulsified Asphalt
 - T 11, Materials Finer Than 75- μ m (No. 200) Sieve in Mineral Aggregates by Washing
 - T 27, Sieve Analysis of Fine and Coarse Aggregates
 - T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
 - T 335, Determining the Percentage of Fracture in Coarse Aggregate
- 2.2. *Federal Lands Highway (FLH) Standard:*
- FLH T 508, Flakiness Index Value

3. TERMINOLOGY

- 3.1. *Definitions:*
- 3.1.1. *rapid-setting type emulsified asphalt*—any emulsified asphalt containing the CRS, CHFRS, HFRS, or RS designation as referenced in M 140, M 208, or M 316.
- 3.1.2. *CSS-1h*—a cationic emulsified asphalt that is slow-setting and hard (for fog seals only).
- 3.1.3. *SS-1h*—an anionic emulsified asphalt that is slow-setting and hard (for fog seals only).

4. SIGNIFICANCE AND USE

- 4.1. This standard specification may be used to select and evaluate materials for the construction of emulsified asphalt chip seals. The design requirements for chip seals can be found in MP 82.

4.2.

5. EMULSIFIED ASPHALT REQUIREMENTS

- 5.1. Emulsified asphalt for chip seals shall meet the requirements of rapid-setting type emulsified asphalt in M 140, M 208, or M 316.
- 5.2. The emulsified asphalt residue hardness classification is determined by the Owner Agency utilizing regional climatic and traffic conditions.
- 5.3. An emulsified asphalt fog seal may be applied to the surface of the completed chip seal as an option. Fog seal emulsified asphalt may be an SS-1h or CSS-1h emulsified asphalt. The fog seal emulsified asphalt shall be diluted at the emulsion manufacturing terminal prior to application such that the residue of the diluted emulsion is not less than 28 percent.

6. AGGREGATE REQUIREMENTS

- 6.1. Chip seal aggregate shall be durable, uniform in quality, and free from deleterious materials. Gradations and quality requirements are specified in Table 1. All percentages are by mass. The aggregate size to be used will be as specified by the Owner Agency. Aggregate retained on the 4.75-mm (No. 4) screen shall be crushed by mechanical means and shall meet the requirements shown in Table 2.

Table 1—Requirements for Chip Seal Aggregates

Sieve Size (see T 11 or T 27)	Passing, %			
	A	B	C	D ^a
¾ in.	100	—	—	—
½ in.	90–100	100	—	—
⅜ in.	5–30	90–100	100	100
No. 4	0–10	5–30	90–100	0–65
No. 8	—	0–10	5–30	0–15
No. 16	0–2	—	0–10	0–10
No. 30	—	0–2	—	—
No. 50	—	—	0–2	0–6
No. 200	0–1	0–1	0–1	0–3

^a Limit use to Class I chip seals as defined in Table 2.

Table 2—Fracture and Abrasion Requirements for Chip Seal Aggregates

Property	Chip Seal Class ^a		
	I	II	III
Fracture, 1 Face, % min (see T 335)	70	85	95
Fracture, 2 Faces, % min (see T 335)	60	80	90
Los Angeles Abrasion, max % loss (see T 96)	40	35	30
Flakiness Index Value, max % (see FLH T 508)	35	30	25

^a Class I is less than ≤500 AADT; Class II is 501–5000 AADT; and Class III is greater than 5000 AADT.

7. KEYWORDS

- 7.1. Aggregate; chip seals; emulsified asphalt; fog seal.

¹ This provisional standard was first published in 2016.

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