



Designation: **D 5727 – 9500**

Standard Specification for Emulsified Refined Coal Tar (Mineral Colloid Type)¹

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1. Scope

1.1 This specification covers mineral-colloid-stabilized, concentrated, emulsified, refined coal tar suitable for use as weather-protective and aliphatic-solvent resistant coatings over bituminous pavements such as those found at airports, parking areas, and driveways. The specification for this material was previously covered by Federal Specification RP355.

NOTE 1—Dilute the concentrated emulsion after testing and prior to application to meet the application specification requirements. Application shall be made in accordance with Practice D 3423.

1.2 The values stated in SI units are to be regarded as the standard. The inch-pound units shown in parentheses are for information only.

1.3 The following precautionary caveat pertains only to the test methods portion, Section 6, of this specification: *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 appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation²

¹ This specification is under the jurisdiction of ASTM Committee ~~D-8~~ D08 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.09 on Bituminous Emulsions.

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- D 140 Practice for Sampling Bituminous Materials³
- D 490 Specification for Tar³
- D 2939 Test Methods for Emulsified Bitumens Used as Protective Coatings⁴
- D 3423 Practice for Application of Emulsified Coal-Tar Pitch (Mineral Colloid Type)⁴
- 2.2 *Federal Specification*:⁵
- Federal Specification RP355

3. Materials and Manufacture

3.1 The emulsion shall be made using ~~binders prepared from high-temperature coke oven tars conforming to the requirements having viscosities of Specification D 490; RT-11 viscosity or higher. Petroleum tars, oil, and water gas~~ The tars shall conform to the requirements of Specification D 490.

3.2 The emulsion shall be fortified with antifreeze when specified.

4. Physical Requirements

4.1 The emulsion shall be homogeneous and exhibit no separation or coagulation of components that cannot be overcome by moderate stirring.

4.2 The material shall conform to the physical properties prescribed in Table 1.

5. Sampling

5.1 Sample in accordance with Practice D 140.

6. Test Methods

6.1 Use Test Methods D 2939 or, as noted (Federal Specification RP355):

- 6.1.1 Uniformity;
- 6.1.2 Wet film continuity;
- 6.1.3 Resistance to freezing (when specified);
- 6.1.4 Density;
- 6.1.5 Residue by evaporation;

² Annual Book of ASTM Standards, Vol 05.01.

³ Annual Book of ASTM Standards, Vol 04.03.

⁴ Annual Book of ASTM Standards, Vol 04.04.

⁵ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

TABLE 1 Physical Requirements for Emulsified Refined Coal Tar (Mineral Colloid Type)

Property ^A	Characteristics	
	min	max
Uniformity	No separation, coagulation or settlement that cannot be overcome by moderate stirring.	
Wet film continuity	Uniform homogeneous consistency.	
Resistance to freezing (when specified)	Shall return to a homogeneous consistency when stirred.	
Density at 77°F (25°C), lb/gal (g/mL)	40 (1.2)	∞
Density at 25°C (77°F), g/mL (lb/gal)	1.2 (10)	∞
Residue by evaporation, %	47	∞
Water content, %	∞	53
Resistance to volatilization, residue weight loss, %	∞	10
Solubility of residue in CS ₂ , %	20	∞
Ash content of residue, %	30	40
Drying time, firm set, h	∞	8
Resistance to heat	No blistering, sagging, or slipping.	
Resistance to kerosene	No loss of adhesion or penetration.	
Resistance to kerosene	<u>No loss of adhesion or penetration. No softening of the film.</u>	
Resistance to water	No loss of adhesion and no blistering or tendency to re-emulsify.	
Flexibility	No flaking, cracking, or loss of adhesion to the substrate.	

^A The test for "resistance to impact" has been deleted because the equipment that was specified is no longer readily available. Ongoing work is being conducted in Task Group D8.09.01 to discover a suitable replacement.

- 6.1.6 Water content, Test Method D 95;
- 6.1.7 Resistance to volatilization;
- 6.1.8 Solubility of residue in CS²;
- 6.1.9 Ash of residue;
- 6.1.10 Drying time;
- 6.1.11 Resistance to heat;
- 6.1.12 Resistance to kerosine;
- 6.1.13 Resistance to water; and
- 6.1.14 Flexibility.

7. Inspection

- 7.1 Inspection of material shall be made as agreed upon between the purchaser and the supplier.

8. Packaging and Marking

8.1 Emulsion shall be packaged to permit acceptance by the carrier for transportation and to afford adequate protection from the normal hazards of shipping and handling.

8.2 Each package shall be marked plainly with the name and brand of the manufacturer or supplier, the ASTM designation as well as the type or grade of the product, and the production code or lot number. The before-mentioned information shall be so noted on the bill of lading if the shipment is by bulk tanker load.

9. Keywords

- 9.1 coal tar; emulsified; mineral colloid; refined; tar

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