



Designation: D5727/D5727M – 00 (Reapproved 2023)

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

This standard is issued under the fixed designation D5727/D5727M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

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 [D3423/D3423M](#).

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

¹ This specification is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.09 on Liquid Applied Coatings for Roofing and Asphaltic Concrete Pavement.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[D95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation](#)

[D140/D140M Practice for Sampling Asphalt Materials](#)

[D490 Specification for Road Tar](#)

[D2939 Test Methods for Emulsified Bitumens Used as Protective Coatings \(Withdrawn 2012\)³](#)

[D3423/D3423M Practice for Application of Emulsified Coal-Tar Pitch \(Mineral Colloid Type\)](#)

2.2 *Federal Specification*:⁴
[Federal Specification RP355](#)

3. Materials and Manufacture

3.1 The emulsion shall be made using tars having viscosities of RT-11 or higher. The tars shall conform to the requirements of Specification [D490](#).

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 [D140/D140M](#).

6. Test Methods

6.1 Use Test Methods [D2939](#) or, as noted:

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,

6.1.6 Water content, Test Method [D95](#),

6.1.7 Resistance to volatilization,

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Obsolete. Previously 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 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 kerosine	No loss of adhesion or penetration. No softening of the film.	
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.

- 6.1.8 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.

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.

7. Inspection

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

9. Keywords

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

8. Packaging and Package 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.

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