



Designation: D2028/D2028M – 15 (Reapproved 2021)^{ε1}

Standard Specification for Cutback Asphalt (Rapid-Curing Type)¹

This standard is issued under the fixed designation D2028/D2028M; 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.

^{ε1} NOTE—Section 1 was updated editorially in December 2021.

1. Scope

1.1 This specification covers cutback petroleum asphalts of the rapid-curing type for use in the construction and treatment of pavements.

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 text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

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

D5/D5M Test Method for Penetration of Bituminous Materials

D95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation

D113 Test Method for Ductility of Asphalt Materials

¹ This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.40 on Asphalt Specifications.

Current edition approved Dec. 15, 2021. Published December 2021. Originally approved in 1963. Last previous edition approved in 2015 as D2028/D2028M – 15. DOI: 10.1520/D2028_D2028M-15R21E01.

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.

D140/D140M Practice for Sampling Asphalt Materials

D402/D402M Test Method for Distillation of Cutback Asphalt

D2042 Test Method for Solubility of Asphalt Materials in Trichloroethylene

D2170/D2170M Test Method for Kinematic Viscosity of Asphalts

D2171/D2171M Test Method for Viscosity of Asphalts by Vacuum Capillary Viscometer

D3143/D3143M Test Method for Flash Point of Cutback Asphalt with Tag Open-Cup Apparatus

D7553 Test Method for Solubility of Asphalt Materials in N-Propyl Bromide

3. Properties

3.1 The cutback asphalt shall not foam when heated to application temperature and shall conform to the requirements prescribed in **Table 1**.

4. Test Methods

4.1 The material shall be sampled in accordance with Practice **D140/D140M**, and the properties enumerated in this specification shall be determined in accordance with the following ASTM methods:

4.1.1 *Flash Point (Tag Open-Cup)*—Test Method **D3143/D3143M**.

4.1.2 *Viscosity, Kinematic*—Test Method **D2170/D2170M**.

4.1.3 *Viscosity, at 60 °C [140 °F]*—Test Method **D2171/D2171M**.

4.1.4 *Distillation*—Test Method **D402/D402M**.

NOTE 1—If a 100-mL graduate does not permit sufficiently close readings to determine conformity to these specifications with the desired accuracy, receivers graduated in 0.1-mL divisions shall be used.

4.1.5 *Penetration*—Test Method **D5/D5M**.

4.1.6 *Ductility*—Test Method **D113**.

4.1.7 *Solubility in Trichloroethylene or N-Propyl Bromide*—Test Method **D2042/D7553**.

4.1.8 *Water*—Test Method **D95**.

TABLE 1 Requirements for Cutback Asphalt (Rapid-Curing Type)

NOTE 1—If the ductility at 25 °C [77 °F] is less than 100, the material will be acceptable if its ductility at 15 °C [59 °F] is more than 100.

Designation	RC-70		RC-250		RC-800		RC-3000	
	Min	Max	Min	Max	Min	Max	Min	Max
Kinematic viscosity at 60 °C [140 °F], mm ² s	70	140	250	500	800	1600	3000	6000
Flash point (Tag open-cup), °C [°F]	...	...	27 [80]	...	27 [80]	...	27 [80]	...
Distillation test:								
Distillate, volume percent of total								
distillate to 360 °C [680 °F]:								
to 190 °C [374 °F]	10	...	...	...	...	...	...	...
to 225 °C [437 °F]	50	...	35	...	15	...	...	...
to 260 °C [500 °F]	70	...	60	...	45	...	25	...
to 316 °C [600 °F]	85	...	80	...	75	...	70	...
Residue from distillation to 360 °C [680 °F], percent volume by difference	55	...	65	...	75	...	80	...
Tests on residue from distillation:								
Viscosity at 60 °C [140 °F], Pa·s ^A	60	240	60	240	60	240	60	240
Ductility at 25 °C [77 °F], cm	100	...	100	...	100	...	100	...
Solubility, %	99.0	...	99.0	...	99.0	...	99.0	...
Water, %	...	0.2	...	0.2	...	0.2	...	0.2

^A Instead of viscosity of the residue, the specifying agency, at its option, can specify penetration at 100 g: 5 s at 25 °C [77 °F] of 80 to 120 for Grades RC-70, RC-250, RC-800, and RC-3000. However, in no case will both be required.

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