



Designation: D7643 – 22

Standard Practice for Determining the Continuous Grading Temperatures and Continuous Grades for PG Graded Asphalt Binders¹

This standard is issued under the fixed designation D7643; 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.

1. Scope

1.1 This practice is used to estimate the continuous grading temperatures and continuous grade for an asphalt binder graded in accordance with the requirements specified in Specification [D6373](#).

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this 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 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.*

1.5 *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

[D8](#) Terminology Relating to Materials for Roads and Pavements

[D2872](#) Test Method for Effect of Heat and Air on a Moving Film of Asphalt Binder (Rolling Thin-Film Oven Test)

[D3666](#) Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

¹ This practice is under the jurisdiction of ASTM Committee [D04](#) on Road and Paving Materials and is the direct responsibility of Subcommittee [D04.44](#) on Rheological Tests.

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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.

[D6373](#) Specification for Performance-Graded Asphalt Binder

[D6521](#) Practice for Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel (PAV)

[D6648](#) Test Method for Determining the Flexural Creep Stiffness of Asphalt Binder Using the Bending Beam Rheometer (BBR)

[D6723](#) Test Method for Determining the Fracture Properties of Asphalt Binder in Direct Tension (DT) (Withdrawn 2021)³

[D6816](#) Practice for Determining Low-Temperature Performance Grade (PG) of Asphalt Binders (Withdrawn 2021)³

[D7175](#) Test Method for Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer

3. Terminology

3.1 *Definitions*—Definitions for many terms common to asphalt cement and asphalt binder are found in Terminology [D8](#).

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *continuous grade, n* —a grade defined by the estimated upper and lower continuous grading temperatures.

3.2.2 *continuous grading temperatures, T_c, n* —the estimated temperatures at which the properties of an asphalt binder are equal to the specification requirements given in Table 1 or 2 of Specification [D6373](#).

3.2.3 *difference between estimated continuous grading temperature for S and the m -value, ΔT_c* —determined by subtracting the continuous grading temperature for the m -value from the continuous grading temperature for S .

3.2.4 *PG grading temperatures, T_{PG}, n* —the temperatures listed in Specification [D6373](#) used to designate the grade of a PG binder, for example, 64 °C, 22 °C, and –28 °C for a PG 64-28.

3.2.5 *specification requirements, n* —the limiting values given in Specification [D6373](#) that are used to grade an asphalt binder, for example, 1.00 kPa for $G^*/\sin\delta$, 300 MPa for S , etc.

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