



Designation: D4887/D4887M – 11

Standard Practice for Preparation of Viscosity Blends for Hot Recycled Asphalt Materials¹

This standard is issued under the fixed designation D4887/D4887M; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This practice covers the procedure for preparation of hot recycled bituminous blends for testing in the laboratory. The procedure involves an iterative trial blend process followed by the preparation of batch blends.

1.2 The batch blends can be used for extensive evaluation such as viscosity, penetration, ductility, aging properties (such as Rolling Thin Film Oven or Thin-Film Oven tests, or both (RTFO/TFO)), composition analysis, solubility analysis, and other user-selected tests.

1.3 This practice assumes that a representative reclaimed asphalt pavement (RAP) sample is extracted and the aged binder recovered using Test Methods D2172 and Test Method D1856 (this practice may be modified by using a rotary evaporator which is extensively evaluated in the minutes of the 18th Pacific Coast Conference on Asphalt Specifications²) or any other acceptable test method.

1.4 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 non-conformance with the standard.

1.5 *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.*

¹ This practice is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.25 on Analysis of Asphalt Mixtures.

Current edition approved June 1, 2011. Published June 2011. Originally approved in 1989. Last previous edition approved in 2003 as D4887 – 99(2003). DOI: 10.1520/D4887_D4887M-11.

² Asphalt Recovery Subcommittee Report, San Francisco, CA, May 17–18, 1983.

2. Referenced Documents

2.1 *ASTM Standards*:³

D1856 Test Method for Recovery of Asphalt From Solution by Abson Method

D2171 Test Method for Viscosity of Asphalts by Vacuum Capillary Viscometer

D2172 Test Methods for Quantitative Extraction of Bitumen From Bituminous Paving Mixtures

D3381 Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction

D6373 Specification for Performance Graded Asphalt Binder

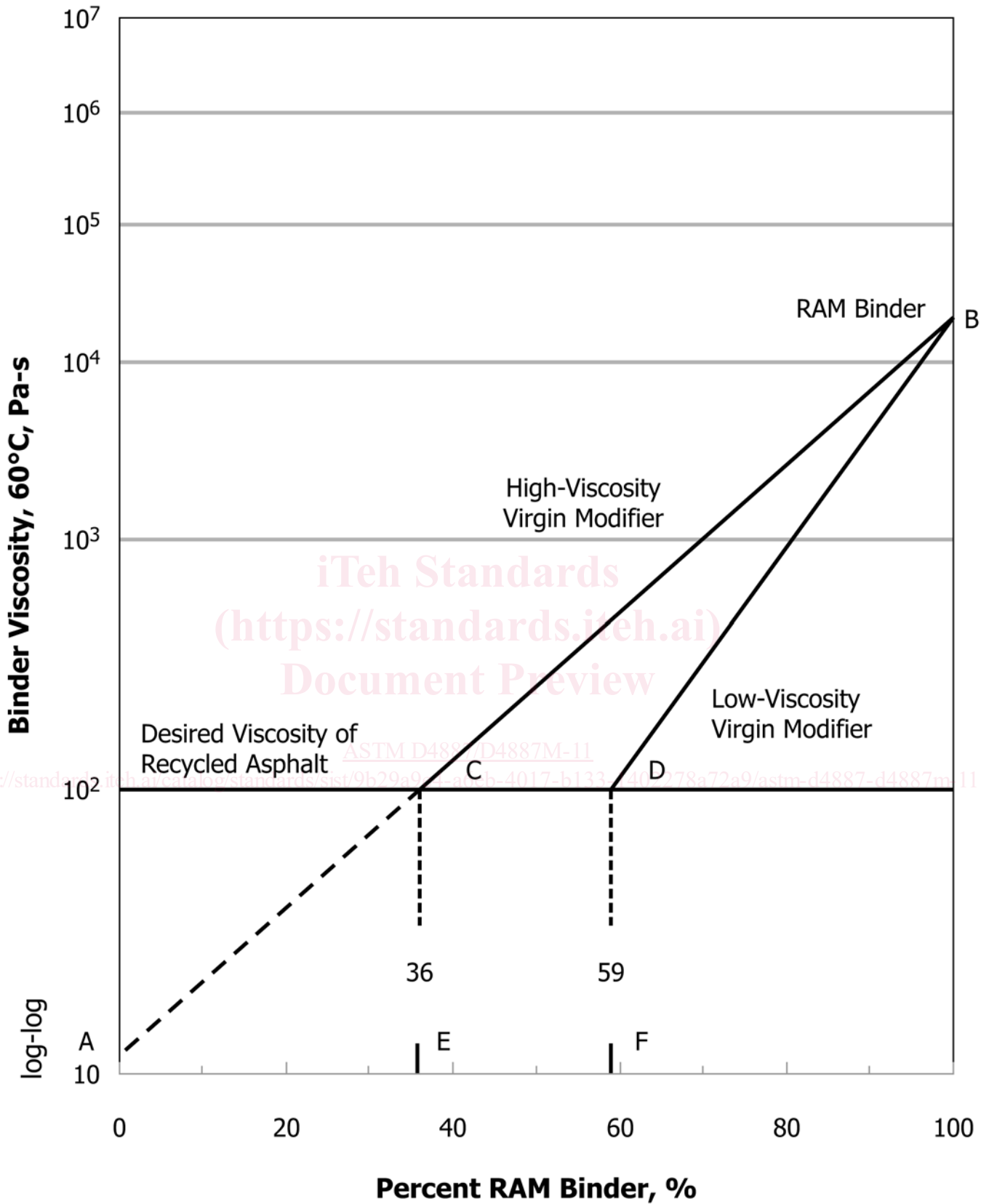
D6816 Practice for Determining Low-Temperature Performance Grade (PG) of Asphalt Binders

D7175 Test Method for Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer

3. Summary of Practice

3.1 This specification covers the use of a viscosity blending chart shown in Fig. 1 or by a Performance Grade (PG) temperature blending chart shown in Fig. 2 to determine the percentage of a recycling agent, rejuvenating agent or pavinggrade- asphalt (hereafter referred to as virgin modifier) required to meet the target viscosity or PG temperature. The blending chart based on viscosity is based upon results from D2171 compared to the limits of D3381. The PG blending chart is based upon the results from D6816 and D7175 which are compared to the limits of D6373. The procedure consists of determining the asphalt binder grade of reclaimed asphalt binder (hereafter referred to as RAM binder), estimating the blend by graphical methods and preparing a blend of virgin modifier and the RAM binder in the laboratory. The measured properties of the blend are compared to the target values. If the

³ 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.



NOTE 1—Calculations using ordinate viscosity (η) values (scales A and B) can be simplified by using $\log\log(100 \times \eta_A$ or η_B (Pa·s)) such that ordinates and abscissa axes become linear.

FIG. 1 Percent RAM Binder Allowed based on Viscosity