Designation: D6084 – 06

StandardTest Method for Elastic Recovery of Bituminous Materials by Ductilometer[1]

This standard is issued under the fixed designation D6084; 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 test method covers the elastic recovery of a bituminous material measured by the recoverable strain determined after severing an elongated briquet specimen of the material of the form described in 4.1. The specimens are pulled to a specified distance at a specified speed and at a specified temperature. Unless otherwise specified, the test shall be made at a temperature of 25 ± 0.5°C (77 ± 0.9°F) and with a speed of 5 cm/min ± 5 %.

1.2 The values stated in SI units are to be regarded as the standard. Values in parentheses in inch-pound units are provided for informational purposes only.

1.3 *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:*[2]

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials
D5 Test Method for Penetration of Bituminous Materials
D113 Test Method for Ductility of Bituminous Materials
E1 Specification for ASTM Liquid-in-Glass Thermometers
E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves
E77 Test Method for Inspection and Verification of Thermometers
E220 Test Method for Calibration of Thermocouples By Comparison Techniques
E644 Test Methods for Testing Industrial Resistance Thermometers

3. Significance and Use

3.1 This test method is useful in confirming that a material has been added to the asphalt to provide a significant elastomeric characteristic. It does not necessarily identify the type or amount of material added.

4. Apparatus

4.1 *Mold* [3]—The mold shall be similar in design to that shown in Fig. 1. The mold shall be made of brass, 10.0 ± 0.1 mm thick, the ends *b* and *b′* being known as clips, and the parts *a* and *a′* as sides of the mold, with a brass base plate that is larger than the assembled mold. The dimensions of the assembled mold shall be as shown in Fig. 1 with the permissible variations indicated. (See Note 1.)

4.2 *Water Bath for Conditioning Specimen*—Maintain the water bath at the specified test temperature, varying not more than 0.1°C (0.18°F) from this temperature. The volume of water shall be not less than 10 L, and the specimen immersed to a depth of not less than 10 cm and supported on a perforated shelf not less than 5 cm from the bottom of the bath.

4.3 *Testing Machine*—For elongating the briquet of bituminous material, any apparatus may be used that is so constructed that the specimen will be continuously immersed in water, while the two clips are pulled apart at a uniform speed, as specified, without undue vibration. A variation of ±5 % is permissible. The water in the tank of the testing machine shall cover the specimen both above and below it by at least 2.5 cm and shall be maintained within ±0.5°C (0.9°F) of the test temperature. The testing machine shall incorporate a means by which the elongation can be measured in centimetres. (See Note 2.)

4.4 *Thermometer*—A thermometer having a range shown as follows, conforming to the requirements in accordance with Specification E1, and calibrated in accordance with Test Method E77. (See Note 3.) An equivalent thermometric device that has been calibrated in accordance with Test Method E220 or Test Methods E644 may be used.

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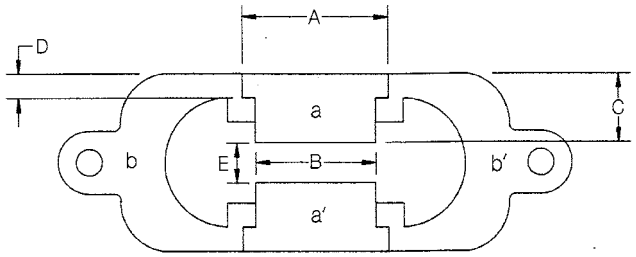
[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The sole source of supply of the apparatus known to the committee at this time is Humboldt Manufacturing Company, 7300 W. Agatite Ave., Chicago, IL 60656. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee[1], which you may attend.



Spacer
A 36.0 ± 0.5 mm
B 30 ± 0.1 mm
C 17 ± 0.1 mm
D 6 ± 0.1 mm
E 10 ± 0.1 mm

NOTE 1—Dimensions for *b* and *b′* can be found in Test Method D113.

FIG. 1 Mold for Elastic Recovery Test Specimen

Lab No. _____

Sample No.	1A	1B	1C	2A	2B	2C	Notes
Date: Test Temp.							
Speed (cm/min)							
Elongation (cm)							
Hold Time (min)							
Orig. Elongation (E)							
Elongation after (X)							
% Elastic Recovery							
Avg. % Elastic Recovery							

Additional Info.

Project:
Type Mat:

Handling Conditions
A.C. - Sieve Size:
Pour Temp:
? Reheat:

Emul. - Dist. Temp:
Sieve Size
? Reheat
Pour Temp.

FIG. 2 Sample Report Form