Designation: D1856 – 09

StandardTest Method for Recovery of Asphalt From Solution by Abson Method[1]

This standard is issued under the fixed designation D1856; 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 recovery by the Abson method of asphalt from a solution from a previously conducted extraction. The asphalt is recovered with properties substantially the same as those it possessed in the bituminous mixture and in quantities sufficient for further testing.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information 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

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

D2939 Test Methods for Emulsified Bitumens Used as Protective Coatings (Withdrawn 2012)[3]

D4080 Specification for Trichloroethylene, Technical and Vapor-Degreasing Grade

D6368 Specification for Vapor-Degreasing Solvents Based on ***normal***-Propyl Bromide and Technical Grade ***normal***-Propyl Bromide

E1 Specification for ASTM Liquid-in-Glass Thermometers

3. Summary of Test Method

3.1 The solution of solvent and asphalt from an asphalt mix extraction is distilled under prescribed conditions to a point where most of the solvent has been distilled, at which time carbon dioxide gas is introduced into the distillation process to remove all traces of the extraction solvent. The recovered asphalt (distillation residue) can then be subjected to further testing as required.

4. Significance and Use

4.1 The asphalt should be extracted from the aggregate-asphalt mixture in accordance with Method A of Test Methods D2172 (centrifuge method) as there is some experimental evidence that the recovered asphalt may have slightly lower penetration values when recovered from solutions obtained from hot extraction methods.

5. Apparatus

5.1 *Centrifuge,* batch unit capable of exerting a minimum centrifugal force of 770 times gravity or continuous unit capable of exerting a minimum force of 3000 times gravity.

5.2 *Centrifuge Tubes*—A supply of wide-mouth bottles or centrifuge tubes may be used for the batch unit. A tube as illustrated in Fig. 1 has been found satisfactory for the continuous unit.

5.3 *Distillation Assembly,* as shown in Fig. 2, and consisting of the following items:

5.3.1 *Extraction Flasks*—Two 250-ml, wide-mouth, heat-resistant flasks, one for distillation and the other for the receiver.

5.3.2 *Glass Tubing*—Heat-resistant glass tubing, having 10-mm inside diameter and gooseneck shaped (as shown in Fig. 2) for connecting the flask to the condenser.

5.3.3 *Inlet Aeration Tube,*[4] at least 180 mm in length, having a 6-mm outside diameter with a 10-mm bulb carrying six staggered side holes approximately 1.5 mm in diameter.

5.3.4 *Electric Heating Mantle,* with variable transformer, oil bath, or fluidized sand bath, to fit a 250-ml flask.

5.3.5 *Water-Jacketed Condenser,* Allihn type, with 200-mm minimum jacket length or equivalent.

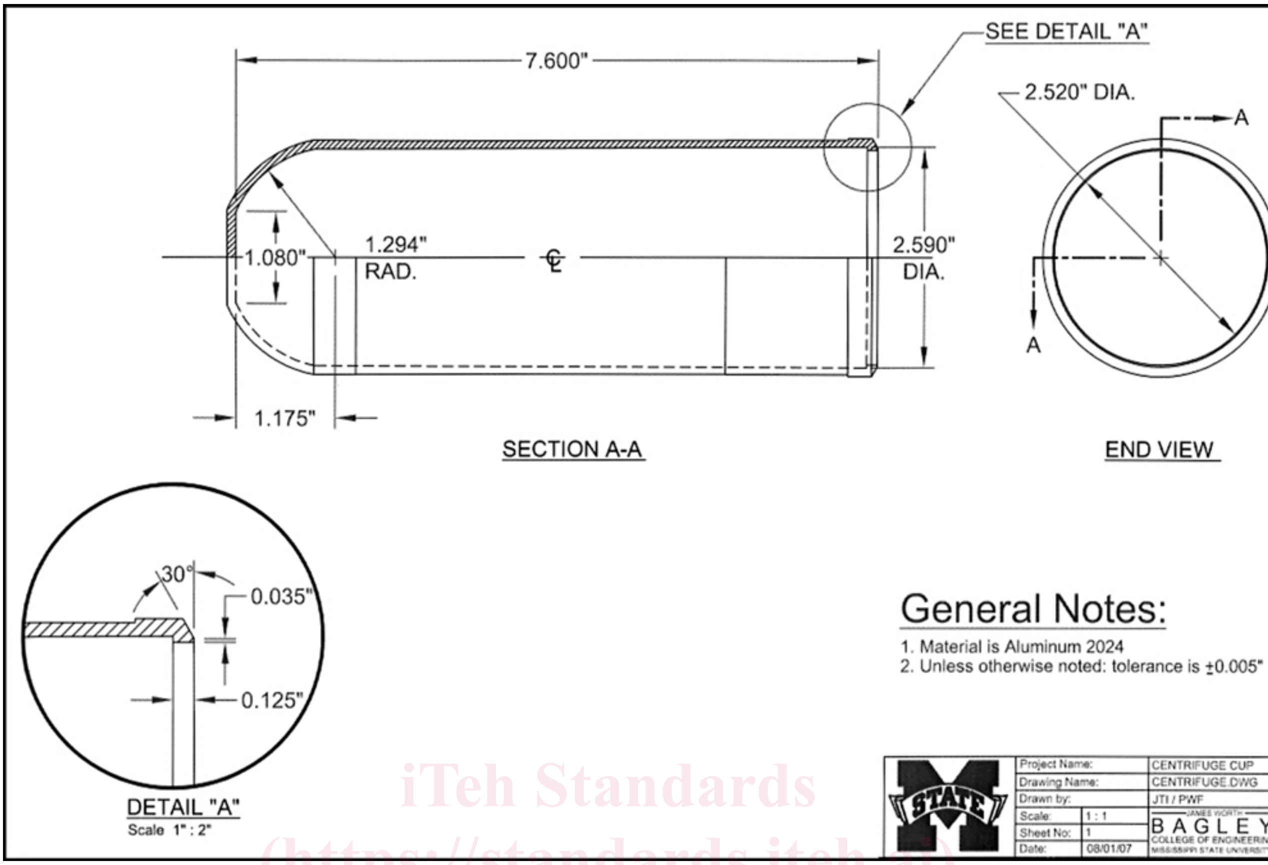
[1] This method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.25 on Analysis of Bituminous Mixtures.

Current edition approved July 1, 2009. Published August 2009. Originally approved in 1961. Last previous edition approved in 2003 as D1856 – 95a (2003). DOI: 10.1520/D1856-09.

[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.

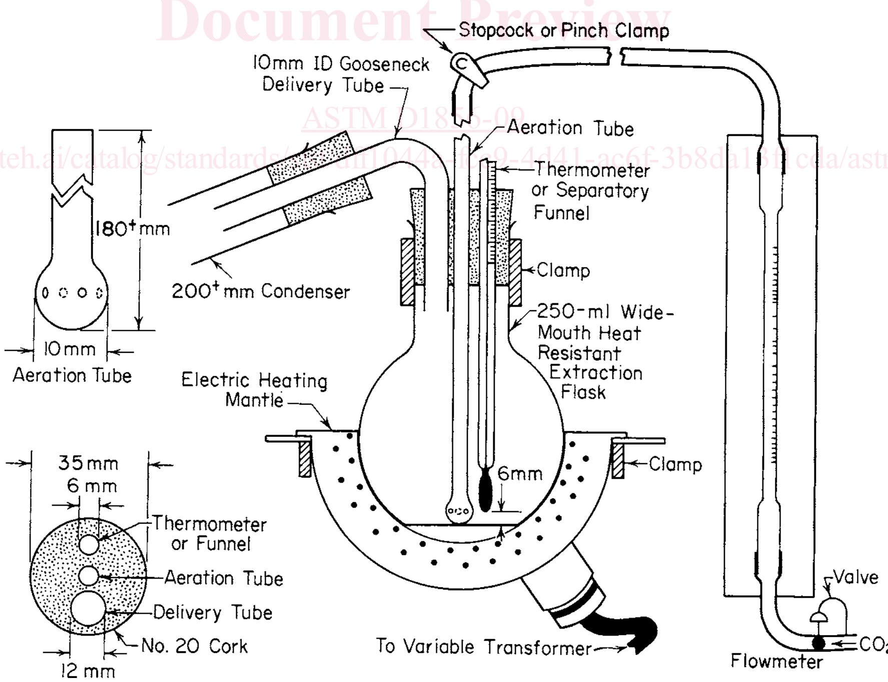
[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] The sole source of supply of the apparatus known to the committee at this time is Inlet Aeration Tube, Part No. 226, available from Wm. A. Sales, Ltd., 419 Harvester Court, Wheeling, Ill. 60090; request Part No. 226. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend.



SEE DETAIL "A"
7.600"
2.520" DIA.
A
1.294"
RAD.
1.080"
2.590"
DIA.
1.175"
SECTION A-A
END VIEW
30°
0.035"
0.125"
DETAIL "A"
Scale 1" : 2"
General Notes:
1. Material is Aluminum 2024
2. Unless otherwise noted: tolerance is ±0.005"
Project Name: CENTRIFUGE CUP
Drawing Name: CENTRIFUGE.DWG
Drawn by: JTI / PWF
Scale: 1 : 1
Sheet No: 1
Date: 08/01/07
BAGLEY
COLLEGE OF ENGINEERING
MISSISSIPPI STATE UNIVERSITY

FIG. 1 Centrifuge Tube Example



Stopcock or Pinch Clamp
10mm ID Gooseneck Delivery Tube
Aeration Tube
Thermometer or Separatory Funnel
180+ mm
200+ mm Condenser
Clamp
250-ml Wide-Mouth Heat Resistant Extraction Flask
10 mm
Aeration Tube
Electric Heating Mantle
35 mm
6 mm
Thermometer or Funnel
Aeration Tube
Delivery Tube
No. 20 Cork
12 mm
6mm
Clamp
Valve
CO2
Flowmeter
To Variable Transformer

FIG. 2 Distillation Assembly for Bitumen Recovery