

ASTM STANDARDS
on
PETROLEUM PRODUCTS
AND LUBRICANTS
(WITH RELATED INFORMATION)



Sponsored by
ASTM COMMITTEE D-2
On Petroleum Products and Lubricants

VOLUME 2

METHODS OF TESTING
SPECIFICATIONS
DEFINITIONS
CHARTS AND TABLES

37TH EDITION

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METHODS OF TESTING
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FOREWORD

This compilation of ASTM Standards on Petroleum Products and Lubricants is published in two volumes. Volume I contains those methods of test, specifications, definitions, charts and tables prepared by Committee D-2 and which find most frequent use in the testing of petroleum products and lubricants. Included also are several general specifications for laboratory testing apparatus prepared by Committee E-1 on Methods of Testing.

Included in Volume I only are a number of proposed methods of test which are published in draft form as information only for the purpose of soliciting comments. Such proposed methods have not been formally approved by the Society and are distinguished from the standards and tentatives by the absence of an ASTM serial designation.

Volume II contains a number of related standards of interest to the petroleum industry prepared by other ASTM technical committees and cover such materials as gaseous fuels, industrial aromatic hydrocarbons, bituminous materials, electrical insulating oils, waterproofing materials, wax polishes, etc.

The Society is widely recognized as the authority on methods of testing petroleum and its products and many of the standards contained in this publication have also been approved as American Standards by the American Standards Association as indicated by the symbols at the top of the title pages.

If experience with any of the standards in this compilation develops suggestions for their improvement, it will be appreciated if these suggestions are transmitted to the Headquarters of the Society, 1916 Race St., Philadelphia 3, Pa.

December, 1960.

Information on other pertinent and important ASTM Publications on Petroleum Products and Lubricants is given on pp. 1106 to 1114 in Volume I of this compilation.

Separate copies of the ASTM Standards and Tentatives appearing in this publication are available from the Society Headquarters at the following prices:

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Standard Method of Test for BITUMEN¹



ASTM Designation: D 4 - 52

ADOPTED, 1927; REVISED, 1942, 1952.²

Reapproved in 1958 Without Change.

This Standard of the American Society for Testing Materials is issued under the fixed designation D 4; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. This method of test is intended for the determination of bitumen in materials containing at least 25 per cent bitumen. Bitumen may usually be expeditiously and accurately determined by Procedure No. 1, Section 5. However, some bituminous materials containing finely divided mineral matter may clog the filter or the mineral residue may not be easily retained, in which cases Procedure No. 2, Section 6, shall be followed.

Apparatus and Materials

2. The apparatus shall consist of the following:

(a) *Gooch Crucible*, approximately 4.4 cm. in width at the top, tapering to 3.6 cm. at the bottom, with a depth of 2.5 cm.

(b) *Asbestos* (amphibole), Gooch grade, acid washed, in pieces not exceed-

ing 1 cm. in length, shredded, and shaken up with water.

(c) *Beakers*.—One 30-ml. beaker, Griffin low-form, and one 150-ml. beaker, Griffin low-form.

(d) *Carbon Disulfide*, C. P.

(e) *Filtering Flask*.

(f) *Filter Tube*.

(g) *Section of Rubber Tubing*, to hold the Gooch crucible on the filter tube.

(h) *Drying Oven*.

(i) *Bunsen Burner or Muffle Furnace*.

(j) *Suction Pump*.

(k) *Analytical Balance*.

(l) *Desiccator*.

(m) *Evaporating Dish*.

(n) *Diatomaceous Earth Filter Aid*.

(o) *Watch Glasses*.

Preparation of Sample

3. The sample shall be representative, and if it contains more than 2 per cent of water it shall be dehydrated in accordance with the Standard Method of Test for Water in Creosote (A.S.T.M. Designation: D 370).³ If the material is hard and brittle, it may be ground, and dried at a temperature below the temperature of volatilization of the material.

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the A.S.T.M. Committee D-4 on Road and Paving Materials.

² Prior to its present adoption as standard, this method was published as standard from 1911 to 1923, but withdrawn and republished as tentative from 1923 to 1927, being revised in 1926 and 1927. The tentative revision issued in 1949 in the form of a separate tentative was adopted in 1952.

³ 1958 Book of ASTM Standards, Parts 4 and 6.