

Sixty-sixth Annual Meeting Papers

RECENT RESEARCH  
ON BITUMINOUS MATERIALS



Published by the  
AMERICAN SOCIETY FOR TESTING AND MATERIALS  
1916 Race St., Philadelphia 3, Pa.

*ASTM Special Technical Publication No. 347*

# RECENT RESEARCH ON BITUMINOUS MATERIALS

---

A Symposium

Presented at the

SIXTY-SIXTH ANNUAL MEETING

AMERICAN SOCIETY FOR TESTING AND MATERIALS

Atlantic City, N. J., June 26, 1963



Reg. U. S. Pat. Off.

---

*ASTM Special Technical Publication No. 347*

---

Price \$5.75; to Members \$4.00

Published by the  
AMERICAN SOCIETY FOR TESTING AND MATERIALS  
1916 Race St., Philadelphia 3, Pa.

---

© BY AMERICAN SOCIETY FOR TESTING AND MATERIALS 1964  
Library of Congress Catalog Card Number: 64-14643

---

Printed in Baltimore, Md.  
May, 1964

## FOREWORD

---

The papers in this publication were presented at the Symposium on Recent Research on Bituminous Materials which was held June 26, 1963, during the Sixty-sixth Annual Meeting of the Society at Atlantic City, N. J.

Of the eight papers presented at the symposium, the first four pertain to the basic nature of asphalt and asphalt testing, and the second set of four pertain to applications of blown asphalt in the roofing field. Thus, the symposium was logically divided into morning and afternoon sessions which were presided over, respectively, by S. H. Greenfeld and W. C. Cullen, both of the National Bureau of Standards. S. H. Greenfeld was symposium chairman, and W. C. Cullen is chairman of ASTM Committee D8 on Bituminous and Other Organic Materials for Roofing, Waterproofing, and Related Building or Industrial Uses.

---

NOTE.—The Society is not responsible, as a body, for the statements  
and opinions advanced in this publication.

---

## CONTENTS

---

	PAGE
Introduction—H. R. Snoke .....	1
Relationship Between Intensity of Carbon Arc and Asphalt Oxidation—J. R. Wright, P. G. Campbell, and T. L. Fridinger .....	3
Discussion .....	20
Alkylolation of Asphaltenes—J. C. Illman and T. J. Deahl .....	21
Discussion .....	38
Composition as Related to Manufacturing and Weathering of Roofing Asphalt— L. W. Corbett and R. E. Swarbrick .....	39
Discussion .....	47
The Prediction of Coating-Grade Asphalt Weatherability from Asphaltene-Dis- persibility Data—T. K. Jones .....	48
Discussion .....	56
Behavior of Asphalts During Prolonged Weathering as Influenced by the Relative Homogeneity of Their Internal Structures—G. L. Oliensis .....	58
Discussion .....	68
Some Engineering Properties of Built-up Roofing—P. M. Jones .....	70
Discussion .....	79
New Concepts in the Blistering of Asphalt Shingles—R. S. Knight, R. B. Platt, and D. J. Smith .....	82
Discussion .....	94
Effect of Heat on Oxidized Asphalts—J. A. Wronka .....	96
Discussion .....	105
Summary—S. H. Greenfeld .....	108

## RELATED ASTM PUBLICATIONS

---

Accelerated Durability Testing of Bituminous Materials, STP 94 (1949)  
Effect of Water on Bituminous Paving Mixtures, STP 240 (1958)  
Bituminous Paving Materials, STP 252 (1959)  
Bituminous Waterproofing and Roofing Materials, STP 280 (1959)  
Bituminous Road and Paving Materials, STP 294 (1960)

THIS PUBLICATION is one of many issued by the American Society for Testing and Materials in connection with its work of promoting knowledge of the properties of materials and developing standard specifications and tests for materials. Much of the data result from the voluntary contributions of many of the country's leading technical authorities from industry, scientific agencies, and government.

Over the years the Society has published many technical symposiums, reports, and special books. These may consist of a series of technical papers, reports by the ASTM technical committees, or compilations of data developed in special Society groups with many organizations cooperating. A list of ASTM publications and information on the work of the Society will be furnished on request.

