Symposium on

EFFECT OF OZONE ON RUBBER



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

ASTM Special Technical Publication No. 229

SYMPOSIUM ON EFFECT OF OZONE ON RUBBER

Sponsored

ASTM COMMITTEE D-11 ON RUBBER AND RUBBER-LIKE MATERIALS

at a meeting in St. Louis, Mo., February 10, 1958



Reg. U. S. Pat. Off.

ASTM Special Technical Publication No. 229

Price \$3.75, to Members \$3.00

Published by the

AMERICAN SOCIETY FOR TESTING MATERIALS

1916 Race St., Philadelphia 3, Pa.

©By American Society for Testing Materials, 1958

FOREWORD

This Symposium on Effect of Ozone on Rubber was sponsored by Committee D-11 on Rubber and Rubber-Like Materials. The papers and discussions were presented as a two-session symposium at a meeting of Committee D-11, Monday, February 10, 1958, during the Society's Committee Week in St. Louis, Mo. G. C. Maassen, Laboratory Director, Rubber Department, R. T. Vanderbilt Co., was chairman of the symposium committee and presided at the symposium.

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

iv

CONTENTS

	PACE
Introduction—G. C. Maassen	1
Rubber and Its Environment—A. J. Haagen-Smit	3 9
A Study of the Action of Ozone with Polybutadiene Rubbers—E. R. Erickson, R. A. Berntsen, E. L. Hill, and Paul Kusy	11
The Reaction of Ozone with Rubber—Harold Tucker Discussion	30 38
Ozone Resistance of Elastomeric Vulcanizates—Z. T. Ossefort	39
Chemical Antiozonants and Factors Affecting Their Utility-William L. Cox	57
Prevention of Ozone Attack on Rubber by Use of Waxes—S. W. Ferris, S. S. Kurtz, Jr., and J. J. Sweely	72
Comparison of Accelerated and Natural Tests for Ozone Resistance of Elastomers—G. N. Vacca	88
Quantitative Measurement of Rate of Ozone Cracking—A. G. Veith	97 112
Report on Interlaboratory Ozone Test Program of ASTM Committee D-11, Subcommittee XV, 1957—A. G. Veith	113

