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# effects of high-energy radiation on inorganic substances

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# EFFECTS OF HIGH-ENERGY RADIATION ON INORGANIC SUBSTANCES

A symposium  
presented at the  
Fifth Pacific Area National Meeting  
AMERICAN SOCIETY FOR  
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## Foreword

The papers in this volume were presented at the Symposium on the Chemical and Physical Effects of High-Energy Radiation on Inorganic Substances, held during the Fifth Pacific Area National Meeting of ASTM at Seattle, Wash., on Nov. 2 and 3, 1966. The symposium was sponsored by Committee E-10 on Radioisotopes and Radiation Effects, whose chairman is G. W. Pomeroy, General Electric Co. Chairman of the Symposium Committee was E. S. Freeman, IIT Research Inst.

## Related ASTM Publications

Materials in Nuclear Applications, STP 276 (1960),  
\$8.25

Radiation Effects and Radiation Dosimetry, STP 286  
(1961), \$4.75

Space Radiation Effects on Materials, STP 330  
(1962), \$2.50

Radiation Effects on Metals and Neutron Dosimetry,  
STP 341 (1963), \$15.00

Chemical and Physical Effects of High-Energy Radia-  
tion on Inorganic Substances, STP 359  
(1964), \$6.00

Space Radiation Effects, STP 363 (1964), \$7.50

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## INTRODUCTION

By E. S. Freeman\*

This symposium on radiation effects on inorganic substances is the second of its type sponsored by ASTM. The first was held on June 25, 1965, and was published in ASTM Special Publication No. 359. Because of the interest expressed in this topic, a second symposium was held on the "Chemical and Physical Effects of High Energy Radiation." It is believed that combining both the chemistry and physics aspects of the radiation effects problem provides a better understanding of the overall mechanism of radiation effects on materials. In this present meeting the scope of topics was expanded to include several very interesting approaches to the investigation of radiation damage to solids as well as to bring up to date some of the outstanding research discussed in the previous symposium in the fields of radiation-induced decomposition reactions, radiation effects on the chemical reactivity of solids, as well as research on crystal defects produced by exposure to high-energy radiation.

\*Assistant director, chemical sciences research, IIT Research Inst., Chicago Ill. Chairman of Symposium Committee.

