

PANEL DISCUSSION ON PYROMETRIC PRACTICES

Presented at the
FIFTY-EIGHTH ANNUAL MEETING
AMERICAN SOCIETY FOR TESTING MATERIALS
Atlantic City, N. J., June 30, 1955



ASTM Special Technical Publication No. 178

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

PANEL DISCUSSION ON PYROMETRIC PRACTICES

Presented at the
FIFTY-EIGHTH ANNUAL MEETING
AMERICAN SOCIETY FOR TESTING MATERIALS
Atlantic City, N. J., June 30, 1955



Reg. U. S. Pat. Off.

ASTM Special Technical Publication No. 178

Price: \$1.50; *to members*, \$1.15.

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

COPYRIGHT, 1956
BY THE
AMERICAN SOCIETY FOR TESTING MATERIALS

Printed in Baltimore, Md.
February, 1956

FOREWORD

The Panel Discussion on Pyrometric Practice in Elevated-Temperature Testing, sponsored by the Joint ASTM-ASME Committee on the Effect of Temperature on the Properties of Metals, was organized by the Test Methods Panel, J. J. Kanter, chairman, and is concerned with the ASTM recommended practices on high-temperature testing of metals, E 21, E 22, and E 85. Much interest centers in defining the precision of temperature measurement and control which can be recommended or specified in high-temperature test work. The Panel Session was organized for the discussion of work in this field.

One formal paper by J. M. Berry and D. L. Martin, General Electric Co., and two formal written discussions by C. R. Wilks and W. E. Leyda, American Brake Shoe Co., were presented. The other discussion leaders of the panel included W. F. Roeser, National Bureau of Standards, P. H. Dike, Leeds & Northrup Co., and J. R. Freeman, University of Michigan, who has campaigned persistently in the Joint High-Temperature group for a rationale of temperature measurement in creep and rupture testing.

The Panel Session was held at the Twenty-second session of the Fifty-eighth Annual Meeting of the American Society for Testing Materials held in Atlantic City, N. J., June 30, 1955. It was presided over by J. J. Kanter, Directing Engineer, Engineering Laboratories, Crane Co.

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

CONTENTS

	PAGE
Introduction—J. W. Freeman.....	1
Thermocouple Immersion Errors—J. M. Berry and D. L. Martin.....	5
Summary of Pyrometric Procedure Employed by One Company in Creep-Rupture Testing and an Analysis of Results Obtained—W. E. Leyda.....	13
Creep and Rupture Test Pyrometry—Charles R. Wilks.....	19
General Discussion.....	32
Closing Remarks—J. W. Freeman.....	41

THIS PUBLICATION is one of many issued by the American Society for Testing 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.