

***FACTORS IN USING
KEROSENE JET FUEL OF
REDUCED FLASH POINT***

DUKEK/STRAUSS, *editors*



STP 688

**AMERICAN SOCIETY FOR
TESTING AND MATERIALS**

FACTORS IN USING KEROSENE JET FUEL OF REDUCED FLASH POINT

A symposium
sponsored by ASTM
Committee D02 on Petroleum
Products and Lubricants
AMERICAN SOCIETY FOR
TESTING AND MATERIALS
Dallas, Tex., 3-8 Dec. 1977

ASTM SPECIAL TECHNICAL PUBLICATION 688
W. G. Dukek, Exxon Research and
Engineering Co., and
K. H. Strauss, Texaco, Inc.,
editors

List price \$15.00
04-688000-13



AMERICAN SOCIETY FOR TESTING AND MATERIALS
1916 Race Street, Philadelphia, Pa. 19103

**Copyright © by American Society for Testing and Materials 1979
Library of Congress Catalog Card Number: 79-53286**

NOTE

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

**Printed in Baltimore, Md.
September 1979**

Foreword

The Symposium on Jet Fuel Flash Point Reduction was presented at a meeting of Committee D02 on Petroleum Products and Lubricants of the American Society for Testing and Materials held in Dallas, Tex., 3–8 Dec. 1977. The symposium was sponsored by the subcommittee (Technical Division J) on Aviation Fuels. K. H. Strauss, Texaco, Inc., presided as symposium chairman and W. G. Duke, Exxon Research and Engineering Co., served as symposium secretary. They have acted as coeditors of this special technical publication which includes the presentations at the symposium.

Related ASTM Publications

**Manual on Requirements, Handling, and Quality Control of Gas Turbine Fuel,
STP 531 (1973), \$20.00, 04-531000-12**

**Significance of ASTM Tests for Petroleum Products, STP 7C (1977), \$11.75,
04-007030-12**

**ASTM Specifications for Petroleum Products, Second Edition (1978), \$9.25,
03-402378-12**

A Note of Appreciation to Reviewers

This publication is made possible by the authors and, also, the unheralded efforts of the reviewers. This body of technical experts whose dedication, sacrifice of time and effort, and collective wisdom in reviewing the papers must be acknowledged. The quality level of ASTM publications is a direct function of their respected opinions. On behalf of ASTM we acknowledge their contribution with appreciation.

ASTM Committee on Publications

Editorial Staff

Jane B. Wheeler, *Managing Editor*

Helen M. Hoersch, *Associate Editor*

Ellen J. McGlinchey, *Senior Assistant Editor*

Helen Mahy, *Assistant Editor*

Contents

Introduction	1
FACTORS FAVORING A FLASH POINT REDUCTION	
Jet Fuel Flash Point Reduction—K. H. STRAUSS	3
Effect of Flash Point Reduction on Jet Fuel Properties—W. G. DUKEK AND E. R. WIELAND	7
TESTING, HANDLING, AND SAFETY PROBLEMS	
Flash Point Methods Applicable to Jet Fuels—T. R. GIBBONS	22
An Overview of Fuel and Ambient Temperatures—I. THOMAS	28
Jet Fuel Safety and Flash Point—H. W. CARHART	35
Effect of Flash Point on the Design and Operation of SST Aircraft— H. T. BOUCHER	46
INDUSTRY PROCEDURES AND GOVERNMENT REGULATIONS	
Regulations and Industry Standards (Flammability)—W. L. MAXWELL	61
Fuel Flash Point and Airline Maintenance Practices—J. J. BRENNEMAN	74
Environmental Regulations—United States and California—J. A. BERT	78
State Control of Evaporative Emissions—T. O. WAGNER	83
NEW KEROSENE SPECIFICATIONS	
Jet A-2, A Fuel to Meet Canada's Energy Constraints—D. E. SALTER	86
Comparison of ASTM Specification for Kerosine (D 3699) with Jet A Fuel— J. D. AUSTIN	97
SUMMARY	
Summary	101
Index	105