

THE
SPECIALIST

PETROLEUM PRODUCTS HANDBOOK

EDITED BY
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PETROLEUM PRODUCTS HANDBOOK

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FIRST EDITION

New York Toronto London

McGRAW-HILL BOOK COMPANY, INC.

1960

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Library of Congress Catalog Card Number: 58-13870

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PREFACE

The *Petroleum Products Handbook* presents practical information and data which will help oil companies and large-scale users of commercial petroleum products in efficient storage, handling, and utilization of these products. The need for this handbook stems from the intensive technological developments in all industries in recent years. All types of equipment and machinery have been greatly improved mechanically and designed to run under far more severe operating conditions. Fuels, lubricants, and other petroleum products, likewise, have been greatly improved and adapted for exacting operating requirements. The selection of the proper petroleum product for the specific application thus has become more important than ever before. Also important is the proper transportation, storage, and handling of products to ensure that they reach the point of usage with their properties unchanged from their manufacture.

The *Petroleum Products Handbook* surveys the properties and characteristics of individual petroleum products which are essential to their efficient performance and economical use. Among the many petroleum products covered are liquefied petroleum gas, gasoline, aircraft fuels, diesel fuels, heating oils, residual fuel oils, greases, waxes, petrochemicals, asphalt, coke, and others. Additives, today incorporated in almost all petroleum products, are classified and their functions defined. A special feature of the handbook is a Reference Data Directory, which serves as a quick means for locating all published sources for current data on tests and specifications, storage, handling, shipping regulations, etc.

Acknowledgment is gratefully made to the contributors to the handbook and to the oil companies which, in some instances, have made it possible for men on their own technical staffs to write for the handbook and, in other cases, have supplied valuable data from their own files and technical reports. Great assistance has also been given by many technical societies and industry associations, including the American Petroleum Institute, American Society of Lubrication Engineers, American Society for Testing Materials, Asphalt Institute, Chemical Specialty Manufacturers' Association, Society of Automotive Engineers, Natural Gasoline Association of America, Western Petroleum Refiners Association, among others. Without the advice and assistance from these and many other sources, the *Petroleum Products Handbook* in its present scope could not have been achieved.

Virgil B. Guthrie

GUIDE FOR HANDBOOK USERS

Encyclopedic Feature. The text material in the *Petroleum Products Handbook* has been prepared to include brief but comprehensive information about the nature, manufacture, and marketing of individual products, in addition to giving data on standards, test methods, and properties which influence performance and thus aid in the selection of products. This general informative material is given in Section 1, and also in the early portions of the individual sections.

Commercial Products. The detailed data presented in the handbook apply to the conventional type of products available at most refineries, for commercial trade. The data also apply to products purchased by the government for conventional uses. Fuels, lubricating oils, greases, and other products serving special uses are discussed at the option of the editors of individual sections. Specifications and test methods applying to products used by the Armed Services in general are not presented.

Units of Measurement. The barrel by which crude oil and most products are measured for statistical purposes is the petroleum industry's historic 42-gallon barrel. Where products such as heavy fuel oils are sold by the barrel, the unit is the 42-gallon barrel. The accepted unit of measurement and sale for most products is the standard U.S. gallon of 231 cubic inches (277.42 cubic inches for the British imperial gallon). The ton by which asphalt and coke are measured and sold is the 2,000-pound short ton. The pound unit for wax, petrolatum, and grease is the standard 16-ounce pound.

Product Specifications. Product specifications are presented in the text of the pertinent individual sections, where their authority and background is explained by the editor of the section. The accepted standards for many products are classifications by type of service rather than rigid purchasing specifications.

Additives. Additives are given special treatment in the handbook, since they are now a component of most petroleum products to enhance their original properties or to impart new qualities. Types of additives used in commercial products are discussed in Section 2. Individual sections of the handbook discuss the functions of additives in specific products.

Industry Terminology. The definitions in the extensive Glossary