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API TOXICOLOGICAL REVIEWS

SEPTEMBER 1948

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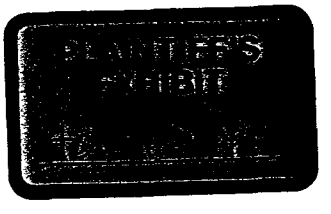

PREFACE

API Toxicological Reviews are being prepared serially and individually for each of a number of substances handled and used in petroleum refineries.

As of the date of this issue (September 1948) reviews are available at the stated prices on substances as follows:

	Price
General Review on the Petroleum Industry—first edition, March 1948	$ .25
1. Aluminum Chloride—first edition, March 1948	.25
2. Boron Trifluoride—first edition, March 1948	.25
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9. Iron Carbonyl—first edition, March 1948	.25
10. Nitrobenzene—first edition, March 1948	.25
11. Styrene—first edition, March 1948	.25
12. Sulfuric Acid—first edition, March 1948	.25
13. Toluene—first edition, March 1948	.25
14. Xylene—first edition, March 1948	.25
Complete set of first 15 (above) Toxicological Reviews	3.00
15. Acrylonitrile—first edition, September 1948	.25
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29. Phenol—first edition, September 1948	.25
30. Phosphorus Pentasulfide—first edition, September 1948	.25
31. Sulfur Dioxide—first edition, September 1948	.25
32. Thiophene and Derivatives—first edition, September 1948	.25
Complete set of Toxicological Reviews No. 15 to 32, inclusive	3.50

A standard ring binder, appropriately stamped "American Petroleum Institute—Toxicological Reviews," may be purchased as follows:

Fabrikoid cover—1-in. ring.....$5.00

Discounts on single-quantity orders for shipments of identical items to a single address are:

5-10 identical items	10 per cent
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API TOXICOLOGICAL REVIEWS

SEPTEMBER 1948

FOREWORD

The evolution of petroleum refining, from a relatively simple process of thermal distillation and acid treatment of products to a variety of complex catalytic cracking and numerous other involved processes and treatments, has been accompanied by an ever-increasing need for accurate and concise information on the toxic properties of substances handled and used in the modern refinery. To be of greatest value such information must be compiled by trained and experienced personnel under the direction of recognized medical authorities. It should be made available by publication in convenient form for daily use as well as reference purposes; therefore, it should include a comprehensive summary of best available facts, tentative recommendations pertaining to the application of the data, and a complete bibliography of the source material. The data should be published in a form which will facilitate re-issuance promptly upon the availability of new and additional information.

These are the objectives which have been sought by the series of monographs entitled *API Toxicological Reviews* which are being published in form for collection in standard ring binders to facilitate usage by petroleum refiners.

Some of the reviews are incomplete. This is inevitable because they represent a compilation of available information, and the present state of knowledge with respect to some of the substances considered is incomplete. It is hoped that this fact will serve to stimulate the quest for further knowledge. These reviews should be considered a beginning, not an end.

Each review is organized along fairly definite lines for the sake of clarity and utility. Sect. I presents the information necessary to identify definitely the substance, whereas Sect. II presents the general physical and chemical properties of the substance. Particular emphasis is given those characteristics influencing volatility, as these have a marked influence on the degree of atmospheric exposure which is likely. Sect. III considers the probable conditions and sources of exposure to the substance, and the considerations presented in subsequent sections assume the type of exposures cited unless otherwise specified. Sect. IV considers the toxicology of the substance. Where sufficient information is available, this section is divided into general considerations, including information on metabolism and excretion; acute effects, chronic effects and, finally, safe limits of exposure for an 8-hour period 5 days a week. Sect. V presents any available information on the treatment of poisoning by the substance under consideration, with particular emphasis on specific therapeutic measures. Sect. VI discusses suggested preplacement or periodic examinations as tentative recommendations for workers likely to be required to undergo significant exposures to a toxic substance. It is assumed that all workers will undergo a careful and complete preplacement examination, including a chest X-ray, so that emphasis is placed on special tests or examinations pertaining to the substances under consideration. Sect. VII discusses precautionary measures, both mechanical and personal, which are suggested for use in handling the substance under consideration. The final section, Sect. VIII, presents a selected bibliography documenting the information given in previous sections.

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FOREWORD

The series of toxicological reviews has been planned by the Institute's Medical Advisory Committee, and prepared for its Subcommittee on Permissible Concentrations, at the Harvard School of Public Health, Boston, Mass., under the direction of Professor Philip Drinker.

The publication of the series of reviews has been approved by the Safety Committee of the Board of Directors of the American Petroleum Institute.

Anyone desiring to submit additional information or proposed changes for consideration prior to re-issuance of this review is requested to send them to the American Petroleum Institute, 50 West 50th Street, New York 20, N. Y.

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