

**CHEMICAL REAGENTS, THEIR PURITY
AND TESTS; A NEW AND IMPROVED TEXT
BASED ON AND REPLACING THE LATEST
EDITION OF KRAUCH'S "DIE PRÜFUNG
DER CHEMISCHEN REAGENTIEN AUF
REINHEIT"**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649184804

Chemical reagents, their purity and tests; a new and improved text based on and replacing the latest edition of Krauch's "Die prüfung der chemischen reagentien auf reinheit" by E. Merck & Henry Schenck

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

E. MERCK & HENRY SCHENCK

**CHEMICAL REAGENTS, THEIR PURITY
AND TESTS; A NEW AND IMPROVED TEXT
BASED ON AND REPLACING THE LATEST
EDITION OF KRAUCH'S "DIE PRÜFUNG
DER CHEMISCHEN REAGENTIEN AUF
REINHEIT"**

CHEMICAL REAGENTS

THEIR

PURITY AND TESTS

A NEW AND IMPROVED TEXT
BASED ON AND REPLACING THE LATEST EDITION OF
KRAUCH'S
"DIE PRÜFUNG DER CHEMISCHEN REAGENTIEN AUF REINHHEIT"

BY

E. MERCK

AUTHORIZED TRANSLATION

BY

HENRY SCIENCK, A.B. (HARVARD)



NEW YORK

D. VAN NOSTRAND COMPANY

23 MURRAY AND 27 WARREN STS.

1907

DR. KRAUCH'S PREFACE

As long ago as the early seventies I felt the need of a treatise on Chemical Reagents, and thought of compiling such a work. I was then an assistant in the chemical laboratory of the Government Agricultural Experiment Station at Munster, and in my chemical work there met with constant difficulties on account of the great variations in the chemicals which were graded as "C. P." "puriss," etc. It was my aim to fix uniform standards for such chemicals as are used in analytical work, such standards to define closely the degree of purity of the chemicals and yet to be possible of attainment in practice by the manufacturer.

Not until 1888, however, did my work in this direction take the tangible form of a book, "*Die Pruefung der Chemischen Reagentien auf Reinheit.*" A second revised and enlarged edition was published in 1891. In 1896 a third edition, carefully revised and still further enlarged, was published. Since that time a good many changes have taken place, so that my book again needed revision. As I was unable to undertake this work, Mr. E. Merck, appreciating the usefulness of such a work as mine, published in 1905 what might be considered its up-to-date revision.

It is a source of gratification to me to see this work translated and placed before my colleagues across the sea. Such changes and additions as the translator has made in order to adapt the book to their particular needs, have my approval.

Darmstadt, February, 1907.

DR. C. KRAUCH.

TRANSLATOR'S PREFACE

THE desire of American chemists to rid themselves of the misleading term "C.P.," and to get in its stead definite statements as to the exact degree of purity of their reagents or the exact limit of the impurities, impelled the American Chemical Society, in 1902, to create a Committee on Purity of Reagents. In 1906 this Committee advised against the publication of a book, because — to use their own language — "until further work is done and more data collected, such a work would be practically only a duplicate of the work of Krauch."*

It is evident that the work of the Committee is being performed with most painstaking care, as, at the time of the last report, the Committee was working on "perfecting a method for the accurate colorimetric determination of traces of iron."* It is evident, too, that if the collection of data regarding other tests than those for iron is pursued with the same painstaking care, the complete report of the Committee will not be ready for publication for several years. My excuse for presenting this translation now lies, therefore, in the hope that, until the work of the Committee appears, chemists will generally make acceptance of their purchases conditional upon their coming up to the specifications of purity prescribed by this translation.

The additions mentioned by Dr. Krauch, in the preface he has kindly consented to write for this book, are limited to

* See *Journal of the American Chemical Society*, Vol. XXVIII, No. 8, pp. 61 and 62.

articles which are universally used here but do not seem to be so in Europe, and for which specifications could be found in authoritative American publications. They are Glacial Acetic Acid 99.5%, 36% Acetic Acid, Hydrochloric Acid of a specific gravity of 1.050, Nitric Acid with one of 1.40, Phosphoric Acid with one of 1.057, 10% Sulphuric Acid, 28% Ammonia Water, 95% Alcohol, and Glycerin of a 1.250 specific gravity. The slight changes obviously necessary in the text on account of these additions have been carefully made.

THE TRANSLATOR.

TRANSLATOR'S NOTE

For the sake of brevity, expressions throughout the book are sometimes used without full qualification. The following is then to be their interpretation.

Atomic Weights, Quantitative Calculations, etc., are based on the table of International Atomic Weights for 1906 in which $O = 16$.

Specific Gravities are given at $+ 15^{\circ}\text{C}$, compared with water at $+ 4^{\circ}\text{C}$.

Unweighable Residue or words to that effect apply to residues weighing 0.0005 gm. or less.

Solutions of chemicals to be tested are made from 1 gm. diluted to 20 cc. or proportionately.

Volumetric Determinations can of course be made with other solutions than the potassium hydroxide and hydrochloric acid solutions generally selected, provided they be equivalent. In such substitution, however, due regard must be given to the suitability of the indicator.

Nitric Acid has a specific gravity of 1.153.

Hydrochloric Acid, one of 1.124.

Ammonia Water, that of 0.96.

The **Marsh Apparatus** should be set up with a 200 cc. generating flask.

The tests presuppose the use of Jena or some equally resistant **Glassware**.

