

**ELEMENTARY ORGANIC
ANALYSIS: THE
DETERMINATION OF
CARBON AND HYDROGEN**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649401338

Elementary Organic Analysis: The Determination of Carbon and Hydrogen by Francis Gano Benedict

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

FRANCIS GANO BENEDICT

**ELEMENTARY ORGANIC
ANALYSIS: THE
DETERMINATION OF
CARBON AND HYDROGEN**

Elementary Organic Analysis.

Elementary Organic Analysis

The Determination of Carbon and
Hydrogen

BY

FRANCIS GANO BENEDICT, PH.D.,

Instructor in Chemistry in Wesleyan University

EASTON, PA.:
THE CHEMICAL PUBLISHING CO.
1900.

COPYRIGHT, 1900, BY EDWARD HART.

PREFACE

Perhaps no analytical operation is at once so fundamentally important and exasperatingly vexatious as the organic combustion. Notwithstanding this fact, save for the meager statements in one or two of the larger books on organic chemistry, no description of the process of the determination of carbon and hydrogen is accessible to most students. As a rule a knowledge of the operation is chiefly obtained by word of mouth.

This little manual is presented in the hope that the descriptions of processes here recorded will aid in making this method of analysis more familiar and more satisfactory.

Usually very little, if any, discrimination is exercised in burning the compounds obtained in organic research, and experiment alone is relied upon to secure the proper conditions for complete combustion. It is hoped that the different cases cited in the latter part of the manual will aid in giving some clue to the treatment necessary for many compounds, thereby saving time and, more frequently, valuable material.

While an attempt has been made to describe all operations commonly used it is obviously impossible not to give fuller consideration to such modifications of the general method as have been suggested by an experience with over two thousand combustions. Ac-

cordingly these modifications are treated in detail and as a general rule recommended in preference to the older manipulations.

For the painstaking care and numerous suggestions of Mr. Emil Osterberg, assistant in this laboratory, whose experimental skill has contributed greatly to many of the modifications here presented, the writer is extremely grateful.

MIDDLETOWN, CONN.

TABLE OF CONTENTS

| | |
|---|----|
| Introduction - - - - - | 1 |
| Preparation of oxygen - - - - - | 2 |
| Compressed oxygen - - - - - | 3 |
| Gasometers or gas-holders - - - - - | 6 |
| Air - - - - - | 11 |
| Purifying apparatus - - - - - | 12 |
| Rubber tubing and stoppers - - - - - | 17 |
| Combustion furnaces - - - - - | 18 |
| Combustion tubes - - - - - | 21 |
| Oxidizing agents - - - - - | 24 |
| Filling the combustion tube - - - - - | 27 |
| Boats - - - - - | 29 |
| Absorbing agents - - - - - | 31 |
| Absorbing apparatus - - - - - | 33 |
| Cleaning and weighing absorbing apparatus - - - - - | 42 |
| Weight of material used - - - - - | 45 |
| Burning out the combustion tube - - - - - | 45 |
| General process of the combustion - - - - - | 49 |
| Combustion of nitrogenous substances - - - - - | 58 |
| Combustion of bodies containing the halogens - - - - - | 65 |
| Combustion of bodies containing sulphur - - - - - | 68 |
| Combustion of bodies containing the alkali metals - - - - - | 70 |
| Combustion of difficultly combustible bodies - - - - - | 70 |
| Combustion of liquids and volatile bodies - - - - - | 73 |
| Combustion of explosive bodies - - - - - | 80 |
| Calculation of results - - - - - | 80 |
| Appendix - - - - - | 82 |
| Index - - - - - | 83 |

