

**TEXT-BOOKS OF CHEMICAL
RESEARCH AND ENGINEERING:
CATALYTIC HYDROGENATION
AND REDUCTION**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649414451

Text-Books of Chemical Research and Engineering: Catalytic Hydrogenation and Reduction by
Edward B. Maxted

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

EDWARD B. MAXTED

**TEXT-BOOKS OF CHEMICAL
RESEARCH AND ENGINEERING:
CATALYTIC HYDROGENATION
AND REDUCTION**

**CATALYTIC HYDROGENATION
AND REDUCTION**

**Text-books of Chemical Research and
Engineering.**

Edited by W. P. DREAPER, F.I.C.

**AN INTRODUCTION TO THE PHYSICS AND
CHEMISTRY OF COLLOIDS.**

By EMIL HATSCHEK. 3rd Edition. With 17 Illustrations. 4s. 6d. Net.

**SURFACE TENSION AND SURFACE ENERGY,
AND THEIR INFLUENCE ON CHEMICAL
PHENOMENA.**

By R. S. WILLOWS, M.A., D.Sc., and E. HATSCHEK.
With Illustrations. 2nd Edition. 4s. 6d. Net.

NOTES ON CHEMICAL RESEARCH.

By W. P. DREAPER, F.I.C. 2s. 6d. Net.

MOLECULAR PHYSICS.

By J. A. CROWTHER, M.A. With 29 Illustrations.
3s. 6d. Net.

**CHEMICAL ENGINEERING. NOTES ON
GRINDING, SIFTING, SEPARATING AND
TRANSPORTING SOLIDS.**

By J. W. HINCHLEY, A.R.S.M., Wh.Sc. With 70
Illustrations. 2s. 6d. Net.

TEXT-BOOKS OF CHEMICAL RESEARCH AND ENGINEERING

CATALYTIC HYDROGENATION AND REDUCTION

BY

EDWARD B. MAXTED, Ph.D., B.Sc., F.C.S.

With 12 Illustrations



PHILADELPHIA

P. BLAKISTON'S SON & CO.

1012 WALNUT STREET

1919

Printed in Great Britain

THE
LONDON
UNIVERSITY PRESS

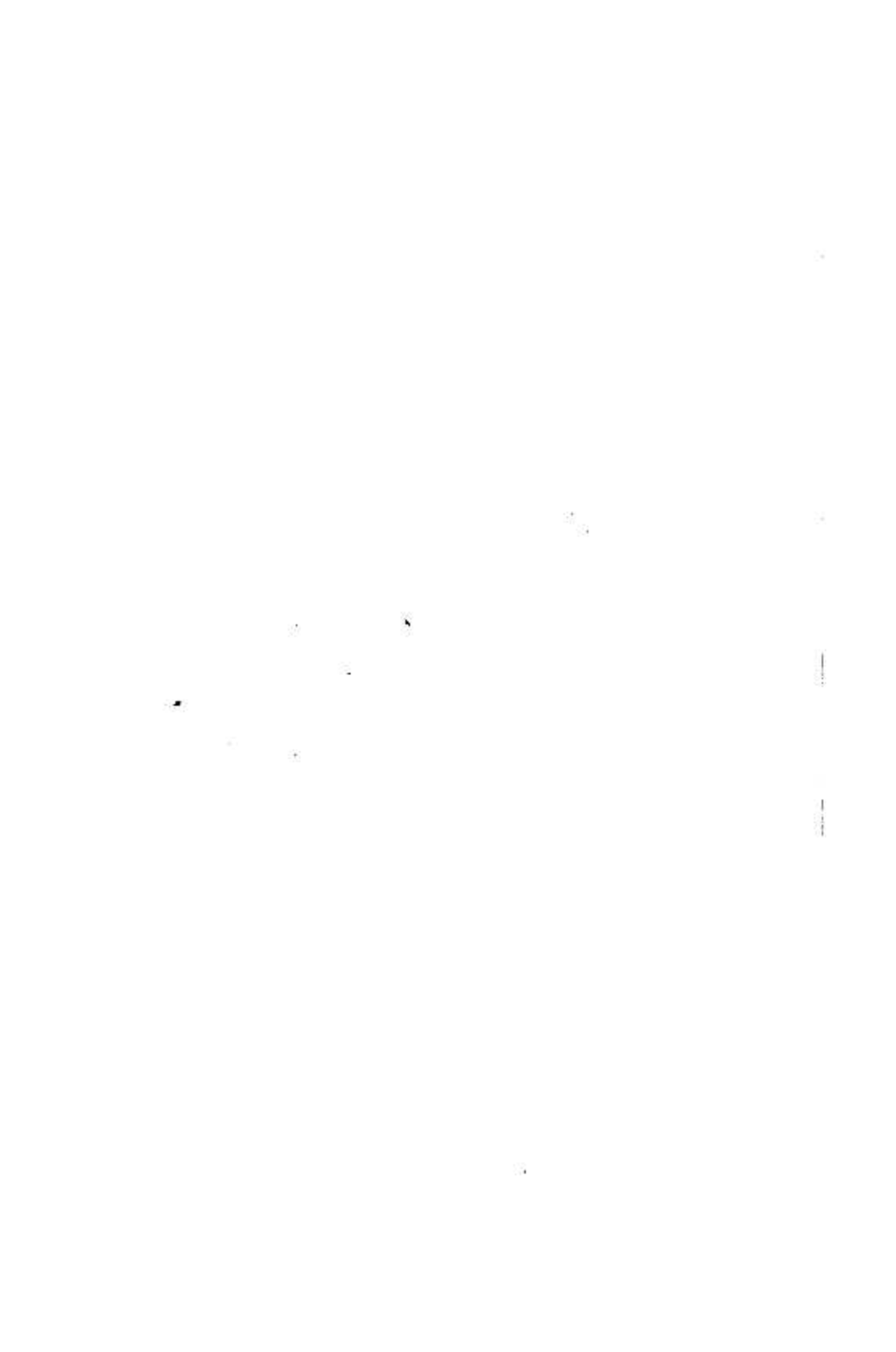
PREFACE

THE present volume has been written with the object of presenting in an easily accessible form the numerous examples of catalytic hydrogenation which have from time to time been published.

Special attention has been given to experimental methods and, in addition to the simple hydrogenation of unsaturated linkages, such as the conversion of ethylene to ethane or of benzene to cyclohexane, various catalytic reductions of a less simple nature, usually involving the splitting off of water or of a halogen acid, have been included. A chapter has also been devoted to dehydrogenation.

E. B. M.

WALSALL.



CONTENTS

	PAGE
PREFACE	v
CHAPTER I	
Historical introduction—Division of catalysts into groups—Temperature and activity—Catalyst poisons	1-5
CHAPTER II	
THE PREPARATION OF CATALYSTS	6-15
Nickel group—Temperature of reduction—Preparation of briquettes—Use of nickel oxide—Cobalt, copper and iron—Platinum group—Colloidal catalysts—Protective colloids—Inoculation method of preparing colloidal metals.	
CHAPTER III	
THE METHODS OF CATALYTIC HYDROGENATION	16-27
Vapour method—Treatment of gases—Hydrogenation by bubbling, shaking and stirring—Types of shaking apparatus—Work under pressure.	
CHAPTER IV	
THE HYDROGENATION OF UNSATURATED CHAINS	28-41
Unsaturated hydrocarbons—Alcohols and ethers—Aldehydes and ketones—Acids and esters—Halogen compounds—Acetylenic linkages.	