

INDICATORS AND TEST-PAPERS; THEIR SOURCE, PREPARATION, APPLICATION, AND TESTS FOR SENSITIVENESS

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649108435

Indicators and test-papers; their source, preparation, application, and tests for sensitiveness by
Alfred I. Cohn

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

ALFRED I. COHN

INDICATORS AND TEST-PAPERS; THEIR SOURCE, PREPARATION, APPLICATION, AND TESTS FOR SENSITIVENESS

C6788i

INDICATORS AND TEST-PAPERS

THEIR SOURCE, PREPARATION,
APPLICATION, AND TESTS
FOR SENSITIVENESS

*A Résumé of the Current Facts regarding the Action
and Application of the Indicators and Test-
papers which have been Proposed from
Time to Time, and are in Present
Use in Chemical Manipulations*

WITH A

TABULAR SUMMARY OF THE APPLICATION OF INDICATORS

*DESIGNED FOR THE USE OF CHEMISTS,
PHARMACISTS, AND STUDENTS*

BY

ALFRED IS^{COHN}, Ph.G.

FIRST EDITION

FIRST THOUSAND

~~362693~~
~~2. 39.~~
~~10.~~

NEW YORK

JOHN WILEY & SONS

LONDON: CHAPMAN & HALL, LIMITED

1899

MICROFILMED BY
UNIVERSITY OF TORONTO
LIBRARY
MASTER NEGATIVE NO.:
950027

Copyright, 1899,
BY
ALFRED L. COHN

PREFACE

MUCH has been written on indicators within the last twenty years in the various journals, etc., devoted to chemistry and pharmacy. No systematic arrangement, however, appears to have been made of the facts recorded by a host of observers, which would present the busy worker with the widely scattered information in the form of a succinct yet comprehensive compilation.

The purpose of this work is, hence, to present an up-to-date résumé of the knowledge regarding the various substances which have been proposed for use from time to time as indicators, so far as their preparation, properties, application, etc., are concerned. Such a résumé appears all the more desirable, because of the increasing value of titrimetric methods, in consequence of their ease and rapidity of application, and more particularly because, with the increase of knowledge regarding the action of the various acids, alkalies, and reaction-products on indicators, arises

the recognition of the necessity for a correct choice of the indicator most suitable for a given case.

The subject-matter has been largely compiled from the files of the various chemical journals, reports of the meetings of chemical and pharmaceutical societies, and works on chemistry, in the English, French, German, Spanish, and Italian languages; and it has been arranged in the form believed to best meet the requirements of the chemist, pharmacist, and student.

In the section devoted to Indicators only those substances have been discussed which are used purely and simply as such; under Test-papers, however, it has been deemed desirable to include all regarding which any reference could be found.

ALFRED I. COHN

NEW YORK, July, 1899

TABLE OF CONTENTS

PART I.

INTRODUCTION

	PAGE
General Considerations.....	1
Correct Choice of Indicators.....	5
Application of Indicators.....	8
Action of Indicators in other than Aqueous Liquids.....	12
Theory of the Action of Indicators.....	15

PART II.

INDICATORS

Alizarin.....	20
Alkanin.....	25
Alpha-Naphtholbenzein.....	29
Azolitmin.....	30
Benzaurin.....	34
Benzopurpurin B.....	35
Brazil Wood.....	37
Brazilin.....	38
Cabbage, Red.....	41
Carmine.....	42
Carminic Acid.....	45
Cobaltous Nitrate.....	48
Cochineal.....	49
Colein.....	54
Congo Red.....	55
Corallin.....	58
Corallin Red.....	58

TABLE OF CONTENTS

	PAGE
Curcumin.....	59
Curcumin W.....	62
Cyanine.....	63
Diazo-paranitraniline-Guaiacol.....	64
Dimethylamidoazobenzene.....	65
Diphenylamine.....	67
Eosine	68
Eosine-Methylene Blue.....	70
Ethyl Orange.....	71
Eupittonic Acid.....	72
Flavescin.....	74
Fluorescein.....	75
Fuchsine.....	78
Gallicin.....	80
Hæmatoxylin.....	82
Hæmatoxylon.....	85
Indigosulphonic Acid.....	88
Indigo Carmine.....	89
Iodeosine.....	91
Iodeosine G.....	93
Iron and Ammonium Sulphate.....	94
Lacmoid.....	95
Litmus.....	99
Luteol.....	106
Mallow.....	108
Mesitylene Quinone.....	110
Methyl Orange.....	111
Methyl Orange and Phenolphthalein.....	118
Methyl Violet.....	118
Orange-peel Extract.....	120
Para-Nitrophenol.....	120
Phenacetolin.....	122
Phenol Nitrosylsulphonate.....	125
Phenolphthalein.....	126
Phenylenediamine, Meta.....	132
Phyllocyanin.....	133
Poirrier Blue C ₄ B.....	135
Polysulphide Solution.....	137
Potassium Bichromate.....	138
Potassium Chromate.....	140

TABLE OF CONTENTS

vii

	PAGE
Potassium Ferricyanide.....	142
Potassium Hydrorufigallate (?).....	144
Potassium Permanganate.....	145
Reflecting Galvanometer.....	147
Resazurin.....	149
Resorcinbenzein.....	151
Rose Coloring-Matter.....	152
Rosolic Acid, Commercial.....	153
Salicylic Acid.....	157
Santalil.....	159
Sodium Salicylate.....	162
Starch.....	162
Tetrabromophenolphthalein.....	163
Thymolphthalein	166
Toluylene Red.....	167
Tropæolin OO.....	168
Tropæolin OOO No. 1.....	170
Tropæolin OOO No. 2.....	171
Zinc-Iodide and Starch.....	172

PART III

TEST-PAPERS

Alkanin.....	176
Azolitmin.....	177
Benzopurpurin.....	177
Brazilin.....	178
Brucine.....	179
Buckthorn.....	179
Carmine.....	179
Citro-Mercuric-Chloride.....	180
Citro-Molybdic-Acid.....	180
Citro-Potassium-Ferrocyanide.....	181
Citro-Sodium-Tungstate.....	181
Cobalt- and Methylene-Blue.....	182
Cobalt.....	182
Cochineal.....	183
Colefin.....	183
Congo-Red.....	184
Corrosive-Sublimate.....	185