

# Contents of Volume 1

## Preface

v

## Contributors to Volume 1

vii

## CHAPTER 1 Introduction and Technique

1

M. PERNAROWSKI

1.1	Introduction	2
1.2	Selecting the Sample	5
1.3	Selecting the Chemicals	9
1.4	Measurement by Mass	10
1.5	Measurement by Volume	27
1.6	The Art and Science of Pharmaceutical Analysis	33
References		40

APEX PUBLICATIONS

MEDICAL BOOK PUBLISHER IMPORTERS

CHAPTER 2 Gravimetric Analysis 129, Islamia Market, Nikhet, Dhaka-1205  
41  
129, Islamia Market, Nikhet, Dhaka-1205  
09660334, 8623156, 0172049257

RONALD T. COUTTS

2.1	Introduction	42
2.2	Factors Affecting the Validity of Gravimetric Assay Processes	46
2.3	Techniques Used in Gravimetric Analysis	52
2.4	Practical Gravimetric Analysis	58
Questions		71
Problems		71
References		72

## CHAPTER 3 Acid-Base Titrations and pH

73

J. W. STEELE

3.1	The Law of Mass Action	74
3.2	Application of the Law of Mass Action to Ionic Equilibria	75
3.3	Neutralization Curves for Acid/Base Titrations	94

X CONTENTS OF VOLUME I

3.4 Choice of Method for Determination of the End Point	115
3.5 Buffer Solutions	123
Problems	126
References	128

CHAPTER 4 Precipitation, Complex Formation, and Oxidation-Reduction Methods

129

JOSEPH A. ZAPOTOCKY

4.1 Titrations Involving Precipitation and Complex Formation	130
4.2 Oxidation-Reduction Methods in Pharmaceutical Analysis	141
References	183

CHAPTER 5 Acidimetry and Alkalimetry

187

MARTIN I. BLAKE

5.1 Concentration of Solutions	189
5.2 Standardization of Solutions	196
5.3 Selection of a Titrant	198
5.4 Indicators	202
5.5 Titration Curves	203
5.6 General Methods of Analysis	207
5.7 Acidimetric and Alkalimetric Assay Procedures	209
Questions	224
Problems	226
References	227

CHAPTER 6 Nonaqueous Titrimetry

229

LESLIE G. CHATTEN

6.1 Theoretical Considerations	230
6.2 Titration of Weak Bases	233
6.3 Titration of Weak Acids	238
6.4 Scope of Nonaqueous Titrations	242
6.5 Analytical Experiments	243
Questions	245
References	246

CHAPTER 7 Complexometric Titrations

247

JAMES P. LEYDA

7.1 Introduction to Complexometric Titrations	248
7.2 Practical Section	272
Questions	278
References	278

<b>X CHAPTER 8 Alkaloidal Assay and Crude Drug Analysis</b>	<b>279</b>
WILLIAM C. EVANS	
8.1 General Considerations	279
8.2 Extraction of Alkaloids	280
8.3 Fractionation of Alkaloidal Mixtures	283
8.4 Quantitative Evaluation of the Separated Alkaloids	295
8.5 Summary of "Official" Methods	308
References	308
<b>CHAPTER 9 Miscellaneous Methods</b>	<b>313</b>
JOSEPH E. SINSHEIMER	
9.1 Aquometry	314
9.2 Gasometric Analysis	325
9.3 Sodium Nitrite: Nitrosation Procedures	330
9.4 Mercuric Acetate	335
9.5 Kjeldahl Nitrogen Determination	336
9.6 Sodium Tetraphenylborate	338
9.7 Experimental Procedures	341
Questions	343
References	344
<b>CHAPTER 10 Ion Exchange</b>	<b>347</b>
MURIEL C. VINCENT	
10.1 Types of Exchangers	348
10.2 Mechanism of Ion Exchange	352
10.3 Column Operation	356
10.4 Applications	361
10.5 Experiments	362
References	365
<b>CHAPTER 11 Column, Thin-Layer, and Paper Chromatography</b>	<b>367</b>
JOHN C. MORRISON	
11.1 Column Chromatography	368
11.2 Thin-Layer Chromatography	381
11.3 Paper Chromatography	391
Questions	403
References	404
<b>CHAPTER 12 Analysis of Fixed Oils, Fats, and Waxes</b>	<b>405</b>
ARTHUR C. GLASSER	
12.1 Introduction	406
12.2 Procedures for the Determination of Physical and Chemical Constants	409

12.3 Identification	427
12.4 Individual Constituents and Structure Determination	429
Questions	435
Problems	436
References	436
<b>CHAPTER 13 Analyses of Volatile Oils</b>	<b>439</b>
<b>ISHWAR C. NIGAM</b>	
13.1 Introduction	440
13.2 Measurement of Physical Properties	440
13.3 Determination of Functional Groups	449
13.4 Determination of Some Specific Constituents	460
13.5 Determination of Essential Oils in Natural Products and Alcoholic Preparations	470
13.6 Composition of Essential Oils	472
References	476
Answers to Problems	479
Author Index	481
Subject Index	491