

CONTENTS

Part One. QUALITATIVE INORGANIC ANALYSIS	19
<i>CATIONS</i>	<i>19</i>
Chapter I. CONCENTRATION OF SOLUTIONS AND WAYS OF EXPRESSING IT	19
Chapter II. LAW OF MASS ACTION, CHEMICAL EQUILIBRIUM	23
Chapter III. IONIC THEORY	27
Chapter IV. CHEMICAL REACTIONS IN AQUEOUS SOLUTIONS	37
Chapter V. LABORATORY WORK IN QUALITATIVE ANALYSIS	41
Chapter VI. ANALYTICAL CLASSIFICATION OF THE CATIONS	56
Chapter VII. GROUP I CATIONS (K^+ , Na^+ , NH_4^+ , Mg^{2+})	58
Chapter VIII. SOLUBILITY PRODUCT	72
Chapter IX. GROUP II CATIONS (Ba^{2+} , Sr^{2+} , Ca^{2+})	81
Chapter X. HYDROGEN ION CONCENTRATION	97
Chapter XI. HYDROLYSIS	108
Chapter XII. OXIDATION-REDUCTION REACTIONS	110
Chapter XIII. COMPLEX COMPOUNDS	120
Chapter XIV. COLLOIDAL SOLUTIONS	125
Chapter XV. GROUP III CATIONS (Al^{3+} , Cr^{3+} , Fe^{3+} , Fe^{2+} , Mn^{2+} , Zn^{2+} , Ni^{2+} , Co^{2+})	127
Chapter XVI. GROUP IV CATIONS (Ag^+ , Hg_2^{2+} , Pb^{2+} , Cu^{2+} , Cd^{2+} , Bi^{3+})	157
Chapter XVII. GROUP V ELEMENTS (As^{3+} , As^{5+} , Sb^{3+} , Sb^{5+} , Sn^{2+} , Sn^{4+})	181
<i>ANIONS</i>	<i>201</i>
Chapter XVIII. ANALYTICAL CLASSIFICATION OF THE ANIONS	201
Chapter XIX. GROUP I ANIONS (Cl^- , Br^- , I^- , S^{2-})	202
Chapter XX. GROUP II ANIONS (CO_3^{2-} , BO_3^- , SO_3^{2-} , SO_3^{2-} , $S_2O_3^{2-}$, PO_3^{3-} , AsO_3^{3-} , AsO_3^{3-} , CrO_4^{2-} , SiO_3^{2-})	209
Chapter XXI. GROUP III ANIONS (NO_2^- , NO_3^-)	218
Chapter XXII. SYSTEMATIC ANALYSIS OF MIXTURE OF ANIONS	220
<i>ANALYSIS OF AN UNKNOWN SUBSTANCE</i>	<i>223</i>
Chapter XXIII. TEST PROCEDURES	223

Part Two. QUANTITATIVE INORGANIC ANALYSIS	233
Chapter XXIV. GENERAL	233
<i>GRAVIMETRIC ANALYSIS</i>	<i>234</i>
Chapter XXV. INTRODUCTION TO GRAVIMETRIC ANALYSIS	234
Chapter XXVI. APPARATUS FOR GRAVIMETRIC ANALYSIS	236
Chapter XXVII. GRAVIMETRIC TECHNIQUES	254
Chapter XXVIII. CALCULATIONS OF GRAVIMETRIC ANALYSIS	266
Chapter XXIX. EXAMPLES OF GRAVIMETRIC ANALYSIS	271
<i>VOLUMETRIC ANALYSIS</i>	<i>282</i>
Chapter XXX. INTRODUCTION TO TITRIMETRIC ANALYSIS	282
Chapter XXXI. APPARATUS USED IN TITRIMETRIC ANALYSIS	286
Chapter XXXII. CALCULATIONS OF TITRIMETRIC ANALYSIS	292
Chapter XXXIII. STANDARD SOLUTIONS	300
Chapter XXXIV. ACID-BASE TITRATIONS	308
Chapter XXXV. ACID-BASE TITRATION PROCEDURES	314
Chapter XXXVI. OXIDATION-REDUCTION TITRATIONS-I PERMANGANATE METHOD	334
Chapter XXXVII. OXIDATION-REDUCTION TITRATIONS-II IODOMETRIC METHOD	343
Chapter XXXVIII. PRECIPITATION TITRATIONS-I. ARGENTIMETRY (MOHR'S METHOD)	355
Chapter XXXIX. PRECIPITATION TITRATIONS-II. TITRATIONS WITH THIOCYANATE (VOLHARD'S METHOD)	359
Chapter XL. COMPLEXOMETRIC TITRATIONS	363
<i>GAS ANALYSIS</i>	<i>366</i>
Chapter XLI. GENERAL PRINCIPLES	366
Part Three. ANALYSIS OF ORGANIC COMPOUNDS	377
Chapter XLII. INTRODUCTION	377
Chapter XLIII. ELEMENTARY QUALITATIVE ANALYSIS	378
Chapter XLIV. ELEMENTARY QUANTITATIVE ANALYSIS	382
Chapter XLV. BROMOMETRIC TITRATIONS	388
Chapter XLVI. DIAZOTIZATION METHOD	400
Chapter XLVII. REDUCTIMETRIC METHOD	412
Chapter XLVIII. COUPLING-REACTION METHOD	422
Chapter XLIX. ANALYSIS BY OXIME-FORMATION	432

Part Four. PHYSICOCHEMICAL METHODS OF ANALYSIS	434
Chapter L. ANALYSIS BY PHYSICAL MEASUREMENTS	436
Chapter LI. CONDUCTOMETRIC ANALYSIS	437
Chapter LII. POTENTIOMETRIC ANALYSIS	457
Chapter LIII. POLAROGRAPHIC ANALYSIS	482
Chapter LIV. REFRACTOMETRIC ANALYSIS	487
Chapter LV. COLORIMETRIC AND SPECTROPHOTOMETRIC ANALYSIS	496
Chapter LVI. CHROMATOGRAPHIC ANALYSIS	521