

CONTENTS

Series Editors's Preface	XV
Authors' Preface	XVII
Chapter 1. General Features of Test Systems	1
1.1 Fields of use and advantages of test systems, terminology	1
1.2 Some history	5
1.3 Classification of test methods	7
1.4 General requirements and metrology	8
1.5 Limitations of test methods	10
References	10
Chapter 2. Chemical Principles of Test Methods : Reactions and Reagents	13
2.1 Selection of reactions and reagents	13
2.2 Variants of reagent applications	23
2.3 Immobilization of chemical reagents. Matrices and methods	30
2.4 Catalytic reactions	53
2.5 Immunoassay procedures	56
References	59
Chapter 3. Methods and Tools for Analysis of Liquid Samples	69
3.1 Paper Strips and Their Analogues	69
3.2 Indicator powders	90
3.3 Indicator tubes	94
3.4 Tablets and similar forms	100
3.5 Regular ampoules and droppers	105
3.6 Self-filling ampoules	108
3.7 Titration kits	108
3.8 Other tools	111
References	112
Chapter 4. Systems of Measurements and Registration	119
4.1 Requirements for methods of analysis of liquids	119
4.2 Visual methods	119
4.3 Colorimetric visual methods	120
4.4 Use of more sophisticated but still compact instruments	121
4.5 Measurement of colour	130

4.6	Titrimetric methods	131
4.7	Chemical dosimeters	132
4.8	Mini devices with built-in software methods	134
4.9	Test concentrators incorporating indicator powders	137
	References	138
Chapter 5. Methodology and Application Areas of Test Systems		139
5.1	Fields of use	139
5.2	Attestation of methods and their official endorsement	140
5.3	Sample screening	143
	References	145
Chapter 6. Determination of Inorganic Components in Water and Soil		147
6.1	Sum parameters	148
6.2	Cations	159
6.3	Anions	191
6.4	Other Inorganic Components	206
	References	210
Chapter 7. Determination of Organic Components in Water and Soil		215
7.1	Sum parameters	215
7.2	Petroleum hydrocarbons	219
7.3	Polyaromatic hydrocarbons (PAH)	222
7.4	Organochlorine compounds	223
7.5	Polychlorinated biphenyls (PCB)	224
7.6	Various pesticides	226
7.7	Other organic compounds	229
	References	237
Chapter 8. Analysis of Air and Vapours		239
8.1	Analysis using indicator tubes	239
8.2	Application of pocket analysers	253
	References	255
Chapter 9. Detection of Alcohol Vapours, Narcotics, Chemical Weapons and Explosives		257
9.1	Alcohol vapours	257
9.2	Narcotics	261
9.3	Chemical Weapons	263
9.4	Explosives	270
	References	273

Chapter 10. Use of Test Methods in Medicine	275
10.1 Determination of glucose	276
10.2 Testing for cholesterol	281
10.3 Other medical applications of test methods	283
10.4 Drug control	286
References	290
Chapter 11. Some Other Applications of test Methods	293
11.1 Determination of gold and silver by the touchstone	293
11.2 Use of Test Methods in Education	297
References	301
Chapter 12. Conclusions and Perspectives	303
Appendix : Producers and Suppliers of Test Kits	305
About the Authors	311
Index	313