

Subject Index

- a**
- Airborne contaminants 197, 198
 - Analytical methods, general
 - Elemental content 62, 63
 - Organic constituents 91–96, 286, 287
 - Organometallic species 76 ff. 286
 - Preconcentration, isolation, separation 61
 - Sample pretreatment 61
 - AOAC 155
 - ASTM, USA 155
 - ATTC, USA 2, 154–157, 160
- b**
- BAM, Germany 3
 - BAS Ltd., UK 3
 - BCR, 5 (organization now SM&T)
 - BCR CRMs
 - Clinical analysis 86, 205, 210
 - Elements and Elemental Species 65 67, 72, 79, 80, 87, 197, 205, 210, 215–219
 - Microbiology 156
 - Organic constituents in matrix CRMs 86, 88, 98, 100, 126, 127, 197, 219
 - Pure organic substances and calibration solutions 84, 85
 - Vitamins, food 86, 87
 - BERM/BRM Symposia 270–272, 279
 - BGS, UK 222, 223
 - BNM, France 3
 - Bowens Kale 4, 216
 - Preparation 26, 59
- c**
- Calibration with CRMs 133 ff., 223, 224, 251
 - Certification examples, elements
 - BCR CRM 482, Lichen 65
 - NIST SRM 1573a, Tomato Leaves 70, 71
 - NIST SRM 1633a, Coal Fly Ash 69
 - NIST SRM 2704, River Sediment 65
 - Certification examples, organic constituents
 - Benzo[b]fluoranthene: BCR CRM 088, Sewage Sludge 98
 - PAHs: NIST SRM 1649a, Urban Dust 93, 96
 - Certification, BCR approach 97–101
 - Certification, NIST approach
 - Definitions 89–92
 - Certified, Reference and Information values 89
 - CITI, Japan 201
 - CRM 3
 - Definitions 8, 49
 - CRMs for Elemental species
 - Separation and detection methods 77–82
 - CRS 172–192
- d**
- DGKC, Germany 201
 - DNA analysis 160 ff., 283
 - DNA fingerprinting 157, 160
 - DUREM Conferences, India 272, 291
- e**
- Error detection/NAA 73, 74
 - EURACHEM 268
- f**
- FBI, USA 160
 - Frozen RMs 122
- g**
- GBW: CRMs of NRCCRM, China 6
 - Elements 216, 217
 - Radioisotopes 145
 - Geological CRMs, table 221
- h**
- Homogeneity determination, definition
 - Homogeneity factors 136
 - Ingamells sampling constant 130, 132
 - Kurfürst relative homogeneity factor 132, 137
 - Homogeneity determination, methods
 - INAA 33–34, 62, 66–75
 - PIXE 35
 - SS-AAS, SS-GFAAS 31, 33, 35, 218
 - SS-ETV-ICP-AES/MS 36, 141

- SS-ZAAS 35, 36
 Various for organic compounds 36
- i**
 IAEA 4, 144–146, 291
 IAEA CRMs
 Metals and organometallic species 73, 74, 80, 137, 221
 Radioisotopes, stable isotopes 145
 IFCC 200
 Information sources
 Catalogues 4, 191, 257
 Comar database 7, 262–265
 IAEA database 7, 257
 Internet 257
 Journals 258–261
 Search engines 262
 Website addresses table 266
 WinRefPro database 265
 IRMM 5, 23, 37, 41, 146, 147, 171, 172
 IRMM CRMs
 DNA materials 171
 Stable isotopes 146, 147
 ISO 7, 156, 267
 ISO Guides
 Guide 30 8, 14, 50, 174, 237
 Guide 31 8, 174, 237, 242
 Guide 32 8, 223, 237
 Guide 33 9, 10, 237
 Guide 34 10, 40, 174, 237
 Guide 35 11, 13, 14, 40, 223, 237
 ISO-REMCO 6, 172, 285
 ISO type RMs 175
 IUPAC 75, 200
- j**
 JGS (Japanese) geological CRMs 221
- k**
- l**
 LGC, UK 5, 282, 289
 Life analysis
 DNA fingerprinting 154, 157
 Molecular taxonomic tests 157
- Polymerase Chain Reaction (PCR) 154
- m**
 Microbiological assays
 Assay standards 183
 Bacteria etc. 153
 GMOs 153, 171
 Microbiological Culture Materials
Enterococcus faecium 158, 159
Salmonella typhimurium 158
 Microbiological RMs 158
 Production 159
 Microchemistry, definition 127
 Miljø-KEMI, Denmark CRMs 197
 Movement of RMs
 Custom tariff numbers 274
 Health and safety data sheet 191, 275
 Labelling 274
 REMCO Guide 276
- n**
 NBS 2, 3 ff.
 NCCLS, USA 155, 200
 NIBSC, UK 201
 NIES 6
 NIES CRMs 30, 215
 NIOH CRMs, Norway 198
 NIST 2, 160–172, see below
 NIST SRMs
 Clinical analytes 86, 205, 209, 210
 Elements/various matrices. 64, 67, 69, 70–73, 79, 136, 137, 198, 199, 205, 210, 215–219, 221
 Human DNA analysis 160–170, 172
 Organic constituents 86, 87, 96
 Pure organic substances and calibration solutions 85
 Radioisotopes and radiopharmaceuticals 145, 147
 Vitamins, food 86
- NIST traceable RMs 283, 285
 Nitrogen concentrations in RMs 216, 217
 NRCC, Canada 5
 NRCC CRMs,
 Elements/elemental species 29, 67, 80, 215, 218, 219
 Organic constituents 5
 NRCCRM, China 6
 NWRI, Canada 5
- p**
 PAHs 91 ff.
 PCBs 91 ff.
 Pharmaceutical analyses 172, 173
 Pharmacopoeiae
 BP (British Pharmacopoeia) 274
 EP (European Pharmacopoeia) 173–192, 273, 274
 USP (United States Pharmacopoeia) 1, 155, 273
 Pharmacopoeial Reference Substances (PRS)
 Candidate RS 181
 Certificates 191
 Evaluation 182
 Expiry date 191
 Identification 175, 182
 International harmonization 192
 Purity control 179
 Related substance test 176, 183
 Storage and distribution 192
 System suitability tests 176
 Used for assay 179, 183
 Uses, overview 176
 Promochem 240, 259, 289
 Proper usage of RMs
 Consensus mean 117
 Consensus values 119
 External Quality Assessment 2, 112, 118
 External Quality Assurance 117–119
 Internal QC 113
 Laboratory accreditation 115

- Levis-Jennings chart 115, 116
- Measurement bias 9, 10
- Measurement traceability 237
- Performance score 117
- Proficiency testing (PT) 112, 280, 282
- Quality Assurance (QA) 236, 279
- Quality Control (QC) 112, 236
- Reporting errors 246, 247
- Shewhart chart 246
- Total Quality Management (TQM) 236, 256
- PTB, Germany 3
- q**
- Quality management
- Good analytical practice 120
 - Good laboratory practice 156
 - Good manufacturing practice 156
- r**
- REMTAF, India 272
- RIVM, NL 159
- RM artifacts
- Methyl mercury 80, 244
- RM certification, general
- Bar charts 65, 100
 - Definitive methods 52
 - Independent reference and validated methods 54, 55
 - Independent reference methods 53, 55
 - Methods: elemental contents 60–64
 - Methods: organic constituents 88–101
 - Specific examples 58–59
 - Specific methods 57
 - Statistical evaluation 59, 95, 101
 - Volunteer analysts – various methods 56, 57
- RM preparation/examples
- Animal tissues 26
 - Ashes and dusts 29
 - Clinical tissues and fluids 28
 - Foods and agricultural products 27
 - Plant tissues 26
 - Sediments 30
 - Soils 29
 - Wastes and sludges 29
 - Waters 29
- RM producers and distributors 258, 259
- RM usage, driving forces 281
- RMs, definition 8
- RMs, general
- Analytes (measurands) 22, 62, 63
 - Characterization, certification 25, 26, 49 ff.
 - Classes 21, 22, 27
 - Collection, preparation 15, 22 ff.
 - Contamination 243
 - Documentation 26
 - Drying, drying conditions 24, 242, 243
 - Expiry date 31, 41, 43, 191, 241
 - Grain (particle) size 12, 13, 28, 31, 32, 243
 - Homogeneity/heterogeneity 14, 31, 33–37, 95, 98, 123–126, 129–134
 - Homogenization, milling 25, 28, 131, 244
 - Humidity, Karl Fischer titration 37–40
 - Isochronous measurements 41, 42
 - Material safety data sheets 191, 275
 - Material selection 24
 - Methods: properties 31
 - Packaging, filling 28, 122–124, 190
 - Sample size 242
 - Shelf life, stability 7, 11, 12, 14, 31, 40–43, 95, 99, 122, 126, 127
 - Sterilization 4, 28
 - Storage 189, 241
 - Water activity 38–40
- s**
- Secondary RMs 201, 284
- SM&T (formerly BCR) 59, 84
- Solid sampling techniques
- Applications 138–143
 - Calibration curve 140
 - Methods 128
- Specimen Bank 7
- SRM, Trade Mark of NIST 3
- Statistical definitions
- Confidence interval 115, 245, 246, 248, 249
 - Expanded uncertainty 95
 - Prediction interval 246, 248
 - Standard deviation of certified value 248, 249
 - Uncertainty budget 135, 136, 245, 247, 252
 - Uncertainty intervals 245
 - Uncertainty value 95, 245, 247
 - Uncertainty, uncertainty calculations 10, 13, 95, 135, 136, 252
- t**
- TBT 76
- TDRM 267
- TPhT 76
- Traceability
- definition 8, 249, 250
 - examples 59, 111, 251
 - legal traceability 250
 - Measurement traceability 237
 - SI units 250
- u**
- USDOD 155
- USFDA 155
- USGS 3, 222ff.
- USGS materials 221
- v**
- VAM Programme, UK 269
- w**
- WHO 200
- WHO RMs 205, 210
- z**
- ZERO RMs 288, 289