

Author Index

A

Abdulkareem, Aishat Y., 265
Adachi, Ken, 215, 319
Adekola, Folahan A., 265
Alabi, Abdul G.F., 265
Ali, Wajid, 235
Anderson, Corby, 39
Andrews, Greg, 3
Ayinla, Kuranga I., 265

B

Baba, Alafara A., 265
Bai, Chenguang, 301
Bale, Rafiu B., 265
Baral, A., 165
Batnasan, Altansukh, 131
Bengio, David, 99
Bourricaudy, Ernesto, 3

C

Cao, Xuejiao, 281
Chen, Bianfang, 273
Chen, Guangyao, 235

D

Dai, Yongnian, 225
Dou, Zhihe, 77, 257
Downing, Bruce, 199
Dreisinger, David, 3, 199
Dumas, Thomas, 99
Dutta, Deblina, 175

F

Fan, Xing, 245
Fukami, Kazuhiro, 215, 319

G

Gao, Pengyue, 235
Ge, Qi, 273

Ghahreman, Ahmad, 15, 27
Ghosh, M.K., 165
Goel, Sudha, 175
Guo, Yun, 309

H

Haga, Kazutoshi, 131
Haxhiaj, Ahmet, 185
Haxhiaj, Bajram, 185
Hu, Yihang, 143
Huang, Qingyun, 301
Huang, Sheng, 273
Huang, Yukun, 77
Husar, Richard, 99

J

Jha, Manis Kumar, 53, 119, 175
Jian, Jian, 325
Jiang, Feng, 325
Jiang, Xingming, 143
Johnson, David, 157
Johnson, Mike, 3
Ju, Shaohua, 325

K

Kang, Juyun, 235
Kitada, Atsushi, 215, 319
Konishi, Hirokazu, 89
Kumari, Archana, 53

L

Lawal, Misitura, 265
Li, Chonghe, 235
Li, Hong-Yi, 291, 309
Lin, Min-Min, 291, 309
Liu, Biao, 273
Liu, Jiang, 77
Liu, Kang, 245
Liu, Liping, 257

Liu, Songli, [225](#)

Liu, Zhuolin, [257](#)

Long, Biyu, [281](#)

Luo, Yi, [257](#)

Lu, Xionggang, [235](#)

Lv, Wei, [301](#)

Lv, Xuewei, [301](#)

Lyu, Guozhi, [257](#), [281](#)

M

Marti, Rajashekhar, [209](#)

Martins, Gerard P., [67](#)

Ma, Wenhui, [225](#)

McElroy, Rod, [199](#)

McNeice, James, [15](#)

McWilliam, William (Bill), [199](#)

Mendes, Eric, [99](#)

Min, Kyungjean, [157](#)

Mishra, Brajendra, [67](#)

Moisy, Philippe, [99](#)

Mokmeli, Mohammad, [199](#)

Muhammed, Muhammed O., [265](#)

Murase, Kuniaki, [215](#), [319](#)

N

Nakai, Yuya, [215](#), [319](#)

Nohira, Toshiyuki, [89](#)

O

Oishi, Tetsuo, [89](#)

Oloman, Colin, [67](#)

Ono, Hideki, [89](#)

P

Panda, Rekha, [119](#), [175](#)

Pan, Xijuan, [257](#)

Pathak, D.D., [53](#), [119](#)

Pellet-Rostaing, Stéphane, [99](#)

Peng, Jinhui, [325](#)

Q

Qin, Ziwei, [235](#)

R

Raji, Mustapha A., [265](#)

S

Sadri, Farzaneh, [27](#)

Schlegel, Michel, [99](#)

Shibayama, Atsushi, [131](#)

Shi, Liuyin, [245](#)

Smith, York R., [209](#)

Solari, Pier-Lorenzo, [99](#)

Song, Yan, [245](#)

Strauss, Mark L., [67](#)

Sun, Liugen, [143](#)

T

Tian, Yajing, [281](#)

Tripathy, B.C., [165](#)

Trueman, David, [199](#)

Trumble, Kevin, [157](#)

V

Vaccarezza, Victoria, [39](#)

Verbaan, Niels, [3](#)

W

Wang, Hua, [143](#)

Wang, Mingyu, [273](#)

Wang, Xuewen, [273](#)

Withers, James C., [113](#)

X

Xia, Hongying, [325](#)

Xiang, Junyi, [301](#)

Xie, Bing, [291](#), [309](#)

Xie, Fuhong, [273](#)

Y

Yang, Weijiao, [143](#)

Yang, Yang, [291](#)

Yang, Yongqiang, [143](#)

Yang, Zhi, [27](#)

Yang, Zhiping, [245](#)

Z

Zhang, Libo, [325](#)

Zhang, Shiju, [225](#)

Zhang, Ting-an, [77](#), [257](#), [281](#)

Zhang, Weiguang, [281](#)

Zhao, Fengqi, [245](#)

Zhou, Shengfan, [273](#)

Subject Index

A

Acid, 199, 201, 202, 206, 208
Acid leaching, 78, 79, 301, 303
Acid pressure leaching, 246, 250–252, 254
Adsorption, 209–212, 214, 291–297
Ag quantity in lead minerals, 195
Alum, 199, 201, 203, 205
Aluminum cesium sulfate primary precipitation, 203
Aluminum cesium sulfate purification, 207
Ammonium paratungstate, 266
Analysis, 69
Analysis of working condition of steel balls, 80
Analysis of XRD and SEM to the products, 84
Analysis results, 70
Analytical electrochemistry, 102
Analytical method, 247
Anion exchange, 291–295
Anodic dissolution of Tb from the formed TbNi₂, 94
Antimonic gold concentrate ores, 145
Antimony, 144–148, 150–153
Apparatus and extraction produce, 326
Arsenic precipitation and waste treatment, 206

B

Ball to powder weight ratio, 81, 84
Barium zirconate, 236–243
Bastnaesite ore, 113
Batch adsorption experiments, 293
Batch leaching of DEEP Fox sample, 10
Batch precipitation studies, 179
Batch production of final rare earth oxide, 10
Beneficiation, 40–43, 50
Bumps made by hammering, 321
Bumps made by the installation of copper sticks, 321

C

Caro's acid, 15, 17–20, 22, 24
Catalysts, 58
Cerium, 15–24
Cesium, 199, 201–203, 205–208
Cerium concentration tests, 22
Cesium extraction and purification process, 201
Cesium formate production, 208
Cesium hydroxide and cesium formate production, 205
Characterisation of EMD, 170
Characterization, 211
Characterization of the as-prepared MnO₂ nanofibers, 168
Characterization study, 177
Chelating extraction, 281, 282
Chemicals and solutions, 292
Chromium, 273–278, 291–295, 297
CO₂, 257–260, 262, 263
Coal ash, 113
Coal fly ash, 58–60
Common leaching, 36, 246, 248, 250–252, 301
Comparison microfluidic and conventional solvent extraction, 332
Conventional acid leaching, 249
Conventional cells, 187
Copper, 215–218, 221, 319–323
Crystal structure, 32, 35
CTAB, 27, 30, 33–36, 165, 166, 170–174
Current density distribution, 217
Current efficiency, 319
Cyclic voltammetry, 91
Cyclone electrowinning, 143–145, 152

D

Decarburization and vanadium protection, 259, 262, 263

- Deep Fox, 3, 4, 6, 10, 14
 Description of beneficiation method, 42
 Description of leaching study, 44
 Discharge Capacity, 173, 174
 Doping, 236, 238, 241
- E**
- Effect of contact time, 297
 Effect of CTAB concentration on electrochemical parameters, The, 170
 Effect of different oxidation temperature on decarburization process, 262
 Effect of extractant concentration, 330
 Effect of extractant dosage on extraction of V and Fe, 284
 Effect of flow rate, 328
 Effect of flow rate ratio, 329
 Effect of impurities on stuck to cathode nodulation, 320, 321
 Effect of initial concentration of solution, 295
 Effect of initial solution pH on extraction of V and Fe, 285
 Effect of inner aqueous on vanadium extraction, 315
 Effect of isoamyl alcohol concentration on vanadium extraction, 314
 Effect of liquid-solid ratio on the distribution of fluorine and phosphorus, 83
 Effect of modifiers, 33
 Effect of phase ratio O/A on extraction of V and Fe, 285
 Effect of pH value of solution, 294
 Effect of reaction temperature on extraction of V and Fe, 287
 Effect of reaction time on extraction of V and Fe, 287
 Effect of resin volume, 296
 Effect of roasting temperature, 276, 277
 Effect of roasting time, 276
 Effect of saponification ratio, 331
 Effect of sodium carbonate addition, 275, 276
 Effect of stirring speed on extraction of V and Fe, 286
 Effect of temperature, 329
 Effect of temperature on vanadium extraction, 316
 Effect of the extraction time on vanadium extraction, 313
 Effect of the pH of the feed solution on vanadium extraction, 312
 Effect of the R on vanadium extraction, 317
 Electric smelting process, 225–228, 230–232
 Electrochemical activity of as prepared nanofiber, 168
 Electrochemical applications, 172
 Electrochemical formation of Tb–Ni alloys, 93
 Electrochemical study, 104
 Electrochemistry, 100–102, 110
 Electrodeposition, 165, 167, 169, 170, 173, 174
 Electrofractionate, 113, 116
 Electrolysis, 89–91, 93, 94, 96, 97, 113, 169
 Electrolytic Manganese Dioxide (EMD), 165, 173
 Electro-refining, 215–218, 221, 319
 Electrowinning temperature, 146
 End-of-life products, 54–56, 61
 Eudialyte, 39–44, 47, 48, 50
 Europium, 67–71, 75, 76, 101, 102, 106
 E-waste, 53–55
 Experimental materials, 246
 Experimental procedure, 283
 Extraction, 3, 4, 7, 9, 10, 13, 14, 114, 115, 310–317
 Extraction isotherm of vanadium, 288
 Extraction mechanism, 312
 Extraction separation, 281–289
- F**
- FactSage, 257, 259, 261
 FEM, 216–218, 221
 Flotation, 186, 189, 190, 192
 Flotation process, 189
 Fluidized bed furnace roasting with acid leaching, 252
 Fluorescent lamps, 55, 57
 Foxtrot, 3–7, 13
 From literature, 185
 Froth flotation, 114
- G**
- Galenit quality, 189
 Gallium, 158
 Geometry and mesh setting, 217
 Gold, 144, 145, 152
 Gravity separation, 42, 47
 Grinding, 185, 186, 189, 197
 Gypsum, 27–36
- H**
- High acid and high iron solution, 281, 282, 289
 Hydrochloric acid, 271
 Hydrochloric acid leaching process, 228
 Hydrogen peroxide, 15, 17–19, 21–24
 Hydrolysis, 157–162, 164
 Hydrometallurgy, 61
 Hypochlorite, 17, 18, 20–24

I

ICP-MS, 157–160, 163, 164
Ilmenite, 301–306
Industrial waste (solid and liquid), 58
Instruments and reagents, 310
Interfacial reaction, 236
Iodine-iodide, 131–135, 138, 140, 141
Iodine-Iodide leaching, 133, 135
Ion-exchange Resin, 293
Ionic liquids, 100, 101
Iron leaching, 301, 304

K

Karl-Fischer titration, 102
Kinetic analysis, 301, 304, 306
Kinetics, 17, 23, 24, 28, 36, 41, 124, 266, 267, 269, 302

L

Lanthanides, 101
Leaching, 41, 44–46, 48–50, 167, 168, 173, 203, 266–269, 271, 273–278
Leaching procedure, 177, 178
Leaching process 1, 44, 48
Leaching process 2, 46, 48
Leaching test, 248, 267, 268
Liquid-solid ratio, 77, 83–85
Lithium, 209, 210, 212–214
Lithium-ion batteries, 175

M

Magnetic separation, 40, 42, 47, 48, 50
Magnets, 53, 55, 56
Management of lead mineral resources, The, 188
Manganese oxide, 209, 210
Manganese precipitate, 179, 180, 182
Manufacturing scrap/residues, 55
Materials, 69
Materials and analysis, 282, 326
Mathematical models for calculating the flotation product, 191
Mechanical milling, 77
Mechanism of salt-roasting, 277
Methylene Iodide heavy liquid separation test, 44, 46
Microemulsion, 310, 311, 313, 314, 316, 317
Microfluidic, 326–329, 332
Microreactor, 326, 329
Mineral, 186, 188
Mixed concentrate, 78–81, 84–86
Mixed rare earth oxide, 3, 13
Mobile phones, 175–177
Molten salt, 90

N

N263, 310–317
Nanomaterials, 166, 168
Nanowires, 209, 210, 212
Natural rutile, 226, 227
Nickel-metal hydride batteries, 58
Nodulation, 216, 221, 319–321, 323
Norra Kärr eudialyte mineral, 42

O

Observation of nodule growth, 320, 322
Open circuit potentiometry, 93
Overall plant performance and reagent consumptions, 13
Oxidation, 4, 16, 20, 22–24, 100, 101, 121, 159, 166, 169, 172, 246, 248–254, 258, 260–263, 274, 277, 282, 302–306
Oxidation roasting, 246, 248, 252, 253, 303–306

P

PAA, 27, 30, 33–36
Particle/bubble contact, 186
Pb Concentrate, 186, 192–197
Permanganate, 17, 22, 24
Peroxide, 20
Phosphor dust, 67
Phosphoric acid, 266–268, 271
pH tests, 20
Pilot operation, 9
Pirotine, 185
Platinum group metals, 119
Post pilot process improvements, 10
Potassium permanganate, 15, 17, 19–24
Precious and base metals, 132, 138, 140
Precipitation, 30, 34, 36
Precipitation of metals under alkaline conditions, 136
Precipitation of precious metals, 137
Precipitation studies, 175, 176, 178, 182
Pre-oxidation, 302, 305, 306
Preparation of adsorbent, 210
Preparation of microemulsion and feed solutions, 311
Preparation of samples, The, 237
Preparation of the MnO₂ samples, 167
Preparation technology, 225–233
Primary source, 301
Procedure, 70
Process development and pilot plant results, 4
Purification, 168, 169, 173
Purification of Mn bearing solutions, 167
PVS, 27, 30, 33–36

R

- Rare earth, 3, 4, 89, 90, 113–117
- Rare Earth Elements (REE), 27, 39–42, 47–49
- Rare earth metals, 53
- Reagents, 102, 185, 188–190
- Recovery of acid by solvent extraction, 178
- Recovery of precious metals, 134
- Recycling, 67
- Recycling of REMs from secondary resources, 54
- Red mud, 53, 54, 58, 59
- Reduction, 68, 75, 100, 106, 108, 115, 122–124, 134, 136, 138, 141, 172, 176, 226, 227, 229, 230, 232, 258, 274, 282, 302
- Reduction-rust process, 229, 230
- Repeated precipitation of same leach liquor, 180

S

- Salt-roasting, 273, 274
- Sample preparation, 104, 203
- Scheelite, 266
- Secondary resources, 54, 61
- Secondary source, 126
- Selective chlorination process, 230, 231
- Separation, 90, 96, 157–160, 164
- Separation of Tb from Nd, 96
- Simulation, 218, 220–222
- Sodium hypochlorite, 17, 18, 21–24
- Solvent extraction, 266, 267, 269, 271, 326–329, 332
- Solvent extraction/beneficiation tests, 267
- Solvent extraction studies, 269
- Speciation diagram, 157, 159, 160, 162–164
- Spectro-electrochemical cell, 103
- Spent catalysts, 124
- Status and development, 225–233
- Sterile, 190, 192–194, 197
- Stoichiometry tests, 20
- Stolzite, 266, 268
- Sulfuric acid leaching process, 229
- Systematic precipitation studies, 175, 178

T

- Taron, 199–201, 203, 204, 208
- Temperature, 80, 82, 84, 85
- Temperature tests, 23
- Thermodynamics, 257, 259, 261, 262
- Thermodynamics analysis of decarburization process, 261
- Titanium alloy, 235, 236, 241–243
- Titanium-rich Materials, 225–228, 230–233
- Titanium-rich materials production methods, 227
- Tungsten, 266–269, 271

U

- U–Mo ore, 252–254
- UV-Vis spectroscopy, 103, 106

V

- Valuable metals, 132
- Vanadium, 273–278, 291–295, 297, 309–317
- Vanadium bearing titanomagnetite, 273
- V and Fe, 281, 282, 284–289

W

- Waste fluorescent lamp, 67
- Waste recycling, 54–60, 68, 122, 125, 126, 132, 203, 292
- Waste water, 53, 58, 60
- Water leaching, 245, 248, 249, 254
- Wet high intensity magnetic separation, 44
- WHIMS on float products, 47
- Wolframite, 265–271

X

- XANES, 101, 107–110
- X-ray absorption spectroscopy, 104
- X-ray Photoelectron Spectroscopy (XPS), 30, 32

Z

- Zinc, 325, 326, 328–332