

Subject Index of Volume 53

- Active mass**
corrosion of lead and lead alloys: influence of the active mass and of the polarization conditions, 85
- Age-hardening**
influence of bismuth on the age-hardening and corrosion behaviour of low-antimony lead alloys in lead/acid battery systems, 63
- Agglomerate-of-spheres**
paste structure and its influence on the agglomerate-of-spheres parameters of the PbO₂ electrode, 175
- Alloys**
lead alloys: past, present and future, 25
advances in the refining and alloying of low-bismuth lead, 75
- Application**
reducing the cost of maintaining valve-regulated lead/acid batteries in telecommunications applications, 149
- Automobiles**
computer model of the lead/acid starter battery in automobiles, 351
- Automotive batteries**
eight years of experience with valve-regulated batteries for automotive use, 137
production of automotive batteries in Russia and other members of the CIS: status, problems and prospects, 229
relation between energetic and utilization coefficients in the positive plates of automotive lead/acid batteries, 289
reliability of lead–calcium automotive batteries in practical operations, 343
- Battery**
lead alloys: past, present and future, 25
- Battery energy-storage systems**
battery energy-storage systems – an emerging market for lead/acid batteries, 239
- Battery industry**
developments in the market for lead/acid batteries in China, 233
environmental regulations: their impact on the battery and lead industries, 309
- Battery management**
development of an on-board charge and discharge management system for electric-vehicle batteries, 327
- Battery model**
a battery model for the monitoring of, and corrective action on, lead/acid electric-vehicle batteries, 339
- Battery separators**
battery separator design requirements and technology improvements for the modern lead/acid battery, 273
rubber separators for tomorrow: performance characteristics and selection guide, 283
- Benzaldehyde derivatives**
influence of substituted benzaldehydes and their derivatives as inhibitors for hydrogen evolution in lead/acid batteries, 359
- Bismuth**
influence of bismuth on the age-hardening and corrosion behaviour of low-antimony lead alloys in lead/acid battery systems, 63
advances in the refining and alloying of low-bismuth lead, 75
- Calcium**
the influence of calcium, tin and grid thickness on corrosion-induced grid growth, 31
- Charging**
a new high-rate, fast-charge lead/acid battery, 201
- China**
developments in the market for lead/acid batteries in China, 233
- Chlorine**
effect of chlorine-containing species on lead/acid battery posts, 93
- Computer model**
computer model of the lead/acid starter battery in automobiles, 351
- Conductance testing**
reducing the cost of maintaining valve-regulated lead/acid batteries in telecommunications applications, 149
- Corrosion**
the influence of calcium, tin and grid thickness on corrosion-induced grid growth, 31
passivation and corrosion phenomena on lead–calcium–tin alloys of lead/acid battery positive electrodes, 53
influence of bismuth on the age-hardening and corrosion behaviour of low-antimony lead alloys in lead/acid battery systems, 63
corrosion of lead and lead alloys: influence of the active mass and of the polarization conditions, 85
- Costs**
reducing the cost of maintaining valve-regulated lead/acid batteries in telecommunications applications, 149
- Cycle life**
a theory of the grid/positive active-mass (PAM) interface and possible methods to improve PAM utilization and cycle life of lead/acid batteries, 9
- Deep cycling applications**
charging of valve-regulated lead/acid batteries under deep cycling applications, 143
- Design**
battery separator design requirements and technology improvements for the modern lead/acid battery, 273
progress in the design and development of improved lead/acid batteries for electric buses and vans, 317
- Discontinuous and continuous transformation**
hardening process in ternary lead–antimony–tin alloys for battery grids, 45

- Dual electrical architecture
 optimized batteries for cars with dual electrical architecture, 367
- Electric-vehicle batteries
 a battery model for the monitoring of, and corrective action on, lead/acid electric-vehicle batteries, 339
- Electric vehicles
 progress in the design and development of improved lead/acid batteries for electric buses and vans, 317
 AC Delco Systems' advanced valve-regulated lead/acid battery for electric vehicles, 323
 development of an on-board charge and discharge management system for electric-vehicle batteries, 327
 monitoring fleets of electric vehicles: optimizing operational use and maintenance, 335
- Electrochemical compatibility
 rubber separators for tomorrow: performance characteristics and selection guide, 283
- Electrochemical energy
 electrochemical energy – progress towards a cleaner future: lead/acid batteries and the competition, 187
- Electron beam crosslinked rubber
 rubber separators for tomorrow: performance characteristics and selection guide, 283
- Energetic coefficient
 relation between energetic and utilization coefficients in the positive plates of automotive lead/acid batteries, 289
- Environment
 a low-temperature technique for recycling lead/acid battery scrap without wastes and with improved environmental control, 303
 environmental regulations: their impact on the battery and lead industries, 309
- Failure analysis
 reducing the cost of maintaining valve-regulated lead/acid batteries in telecommunications applications, 149
- Failure modes
 failure modes of valve-regulated lead/acid batteries in different applications, 153
- Fast charging
 development of an on-board charge and discharge management system for electric-vehicle batteries, 327
- Float-charge
 gas evolution and performance assessment of submarine lead/acid batteries, 99
- Float operation
 performance of valve-regulated lead/acid test cells for float operation using modified positive active materials, 119
- Future
 electrochemical energy – progress towards a cleaner future: lead/acid batteries and the competition, 187
- Gas evolution
 gas evolution and performance assessment of submarine lead/acid batteries, 99
- Glass-microfibre separator
 separator design for valve-regulated lead/acid batteries, 127
- Grids
 lead alloys: past, present and future, 25
 wrought lead–calcium–tin alloys for tubular lead/acid battery grids, 207
- Grid/PAM interface
 a theory of the grid/positive active-mass (PAM) interface and possible methods to improve PAM utilization and cycle life of lead/acid batteries, 9
- Grid thickness
 the influence of calcium, tin and grid thickness on corrosion-induced grid growth, 31
- Hydrogen evolution
 influence of substituted benzaldehydes and their derivatives as inhibitors for hydrogen evolution in lead/acid batteries, 359
- Impedance spectroscopy
 in situ redox conductivity, XPS and impedance spectroscopy studies of passive layers formed on lead–tin alloys, 163
- Inhibitors
 influence of substituted benzaldehydes and their derivatives as inhibitors for hydrogen evolution in lead/acid batteries, 359
- Interface
 a theory of the grid/positive active-mass (PAM) interface and possible methods to improve PAM utilization and cycle life of lead/acid batteries, 9
- Lead
 lead alloys: past, present and future, 25
 advances in the refining and alloying of low-bismuth lead, 75
 corrosion of lead and lead alloys: influence of the active mass and of the polarization conditions, 85
- Lead/acid batteries
 a theory of the grid/positive active-mass (PAM) interface and possible methods to improve PAM utilization and cycle life of lead/acid batteries, 9
 the influence of calcium, tin and grid thickness on corrosion-induced grid growth, 31
 passivation and corrosion phenomena on lead–calcium–tin alloys of lead/acid battery positive electrodes, 53
 influence of bismuth on the age-hardening and corrosion behaviour of low-antimony lead alloys in lead/acid battery systems, 63
 gas evolution and performance assessment of submarine lead/acid batteries, 99
 operational experience with valve-regulated lead/acid batteries, 111
 eight years of experience with valve-regulated batteries for automotive use, 137
 electrochemical energy – progress towards a cleaner future: lead/acid batteries and the competition, 187
 a new high-rate, fast-charge lead/acid battery, 201
 wrought lead–calcium–tin alloys for tubular lead/acid battery grids, 207
 pulsed-current charging of lead/acid batteries – a possible means for overcoming premature capacity loss?, 215
 developments in the market for lead/acid batteries in China, 233
 battery energy-storage systems – an emerging market for lead/acid batteries, 239
 predicting the service lifetime of lead/acid batteries in photovoltaic systems, 245
 extreme low-maintenance, lead/acid battery for photovoltaic power-supply systems in remote, tropical areas, 255
 battery separator design requirements and technology improvements for the modern lead/acid battery, 273
 rubber separators for tomorrow: performance characteristics and selection guide, 283
 relation between energetic and utilization coefficients in the positive plates of automotive lead/acid batteries, 289
 single-point watering of lead/acid batteries, 293
 progress in the design and development of improved lead/acid batteries for electric buses and vans, 317
 AC Delco Systems' advanced valve-regulated lead/acid battery for electric vehicles, 323

- development of an on-board charge and discharge management system for electric-vehicle batteries, 327
- a battery model for the monitoring of, and corrective action on, lead/acid electric-vehicle batteries, 339
- computer model of the lead/acid starter battery in automobiles, 351
- influence of substituted benzaldehydes and their derivatives as inhibitors for hydrogen evolution in lead/acid batteries, 359
- Lead/acid battery paste
 - vacuum- and air-cooled mixing of lead/acid battery paste: a comparison of the production results, 269
- Lead/acid battery plates
 - advances in manufacturing systems for the production of pastes for lead/acid battery plates, 263
- Lead/acid battery posts
 - effect of chlorine-containing species on lead/acid battery posts, 93
- Lead/acid battery scrap
 - a low-temperature technique for recycling lead/acid battery scrap without wastes and with improved environmental control, 303
- Lead/acid test cells
 - performance of valve-regulated lead/acid test cells for float operation using modified positive active materials, 119
- Lead alloys
 - corrosion of lead and lead alloys: influence of the active mass and of the polarization conditions, 85
- Lead-antimony alloys
 - influence of bismuth on the age-hardening and corrosion behaviour of low-antimony lead alloys in lead/acid battery systems, 63
- Lead-antimony-tin alloys
 - hardening process in ternary lead-antimony-tin alloys for battery grids, 45
- Lead-antimony-tin diagram
 - hardening process in ternary lead-antimony-tin alloys for battery grids, 45
- Lead battery scrap
 - development and use of a new system for environmentally clean recycling of lead battery scrap, 297
- Lead-calcium batteries
 - reliability of lead-calcium automotive batteries in practical operations, 343
- Lead-calcium-tin alloys
 - passivation and corrosion phenomena on lead-calcium-tin alloys of lead/acid battery positive electrodes, 53
 - wrought lead-calcium-tin alloys for tubular lead/acid battery grids, 207
- Lead dioxide electrode
 - paste structure and its influence on the agglomerate-of-spheres parameters of the PbO₂ electrode, 175
- Lead hardening process
 - hardening process in ternary lead-antimony-tin alloys for battery grids, 45
- Lead industry
 - environmental regulations: their impact on the battery and lead industries, 309
- Lead-tin alloys
 - in situ redox conductivity, XPS and impedance spectroscopy studies of passive layers formed on lead-tin alloys, 163
- Lifetime
 - predicting the service lifetime of lead/acid batteries in photovoltaic systems, 245
- Maintenance
 - reducing the cost of maintaining valve-regulated lead/acid batteries in telecommunications applications, 149
- development of an on-board charge and discharge management system for electric-vehicle batteries, 327
- monitoring fleets of electric vehicles: optimizing operational use and maintenance, 335
- Manufacturing systems
 - advances in manufacturing systems for the production of pastes for lead/acid battery plates, 263
- Market
 - battery energy-storage systems — an emerging market for lead/acid batteries, 239
- Microporous rubber separator
 - rubber separators for tomorrow: performance characteristics and selection guide, 283
- Model
 - computer model of the lead/acid starter battery in automobiles, 351
- Open-circuit
 - gas evolution and performance assessment of submarine lead/acid batteries, 99
- Operational use
 - monitoring fleets of electric vehicles: optimizing operational use and maintenance, 335
- Passivation
 - passivation and corrosion phenomena on lead-calcium-tin alloys of lead/acid battery positive electrodes, 53
- Paste production
 - advances in manufacturing systems for the production of pastes for lead/acid battery plates, 263
- Paste structure
 - paste structure and its influence on the agglomerate-of-spheres parameters of the PbO₂ electrode, 175
- Permeability
 - separator design for valve-regulated lead/acid batteries, 127
- Photovoltaic power-supply systems
 - extreme low-maintenance, lead/acid battery for photovoltaic power-supply systems in remote, tropical areas, 255
- Photovoltaics
 - predicting the service lifetime of lead/acid batteries in photovoltaic systems, 245
- Polarization conditions
 - corrosion of lead and lead alloys: influence of the active mass and of the polarization conditions, 85
- Positive active mass
 - a theory of the grid/positive active-mass (PAM) interface and possible methods to improve PAM utilization and cycle life of lead/acid batteries, 9
- Positive active materials
 - performance of valve-regulated lead/acid test cells for float operation using modified positive active materials, 119
- Positive plates
 - relation between energetic and utilization coefficients in the positive plates of automotive lead/acid batteries, 289
- Premature capacity loss
 - pulsed-current charging of lead/acid batteries — a possible means for overcoming premature capacity loss?, 215
- Production
 - vacuum- and air-cooled mixing of lead/acid battery paste: a comparison of the production results, 269
- Pulsed-current charging
 - pulsed-current charging of lead/acid batteries — a possible means for overcoming premature capacity loss?, 215
- Rechargeable batteries
 - operational experience with valve-regulated lead/acid batteries, 111

- Recovery**
predicting the service lifetime of lead/acid batteries in photovoltaic systems, 245
- Recycling**
development and use of a new system for environmentally clean recycling of lead battery scrap, 297
a low-temperature technique for recycling lead/acid battery scrap without wastes and with improved environmental control, 303
- Redox conductivity**
in situ redox conductivity, XPS and impedance spectroscopy studies of passive layers formed on lead-tin alloys, 163
- Refining**
advances in the refining and alloying of low-bismuth lead, 75
- Reliability**
operational experience with valve-regulated lead/acid batteries, 111
reducing the cost of maintaining valve-regulated lead/acid batteries in telecommunications applications, 149
reliability of lead-calcium automotive batteries in practical operations, 343
- Remote areas**
extreme low-maintenance, lead/acid battery for photovoltaic power-supply systems in remote, tropical areas, 255
- Russia**
production of automotive batteries in Russia and other members of the CIS: status, problems and prospects, 229
- Self-discharge**
gas evolution and performance assessment of submarine lead/acid batteries, 99
- Service batteries**
optimized batteries for cars with dual electrical architecture, 367
- Single-point watering**
single-point watering of lead/acid batteries, 293
- Solar**
predicting the service lifetime of lead/acid batteries in photovoltaic systems, 245
- Starter batteries**
computer model of the lead/acid starter battery in automobiles, 351
optimized batteries for cars with dual electrical architecture, 367
- Stratification**
separator design for valve-regulated lead/acid batteries, 127
predicting the service lifetime of lead/acid batteries in photovoltaic systems, 245
- Submarines**
gas evolution and performance assessment of submarine lead/acid batteries, 99
- Tin**
the influence of calcium, tin and grid thickness on corrosion-induced grid growth, 31
- Utilization coefficient**
relation between energetic and utilization coefficients in the positive plates of automotive lead/acid batteries, 289
- Vacuum mixing**
vacuum- and air-cooled mixing of lead/acid battery paste: a comparison of the production results, 269
- Valve-regulated cells**
performance of valve-regulated lead/acid test cells for float operation using modified positive active materials, 119
- Valve-regulated lead/acid batteries**
operational experience with valve-regulated lead/acid batteries, 111
separator design for valve-regulated lead/acid batteries, 127
eight years of experience with valve-regulated batteries for automotive use, 137
charging of valve-regulated lead/acid batteries under deep cycling applications, 143
failure modes of valve-regulated lead/acid batteries in different applications, 153
AC Delco Systems' advanced valve-regulated lead/acid battery for electric vehicles, 323
- Water loss**
influence of substituted benzaldehydes and their derivatives as inhibitors for hydrogen evolution in lead/acid batteries, 359
- Wetting**
separator design for valve-regulated lead/acid batteries, 127
- X-ray photoelectron spectroscopy**
in situ redox conductivity, XPS and impedance spectroscopy studies of passive layers formed on lead-tin alloys, 163