RECENT PUBLICATIONS ON LEAD/ACID BATTERIES AND RELATED PHENOMENA 1984-85 No. 2

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The aim of this abstracting service is to provide workers with a review of paper and patent titles in the area of lead/acid batteries, and in particular to assist those workers who do not have ready access to citation facilities. The aim is to publish the compilation half-yearly and an author index for a given year will be provided when citations for that year are complete.

The publications are grouped under broad titles and, where possible, are numbered in chronological sequences that will be continued in each succeeding issue. Due to the unavoidable delay between the appearance and the citation of papers, the two issues of each year will necessarily include items published both during that year and during the previous year.

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Improvements in Alloys, Oxides and Expanders for Lead Batteries. International Meeting of Battery Technologists and Lead Industry Representatives, 1984, Lead Development Assoc., London, UK, pp. 8-14.

A7. X-ray diffraction analysis of Barton oxides.

A. De la Torre, M. Torralba, A. Garcia and P. Adeva (*CSIC, Madrid, Spain*).

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A8. Quantitative analysis of orthorhombic and tetragonal lead monoxide mixtures using internal standard Raman spectroscopy.

G.M. Trischan (*Johnson Controls Inc., Milwaukee, USA*).

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A10. Simple but informative experiments on a plain separator for lead-acid batteries.

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J. Power Sources, 15 (1985) 157-67.

B. LEAD AND LEAD ALLOYS

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K. Miyazaki and M. Sumida (*Mitsui Mining and Smelting Co., Ltd., Takehara, Japan*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 78-85.

B14. Improved lead alloys for battery making.

D. Prengaman (*RSR Inc., Dallas, USA*).

Improvements in Alloys, Oxides and Expanders for Lead Batteries. International Meeting of Battery Technologists and Lead Industry Representatives, 1984, Lead Development Assoc., London, UK, pp. 3-7.

B15. Advanced battery grid alloys.

D.R. Prengaman (*RSR Corp., Dallas, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 201-13.

B16. Casting behavior and properties of lead-calcium-(tin)-(aluminium) alloys for storage battery grid plates.

C. Standke and S. Engler (*Rhenisch-Westfaelischen Tech. Hochsch., Aachen, Fed. Rep. Ger.*).

Giessereiforschung, 36 (1984) 149-59.

B17. Antimony-free battery alloys.

V.I. Bolotovskii and G.V. Krivchenko (*USSR*).

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B18. Effect of alloying additions on the age hardening of lead-antimony alloys for battery grids.

M. Abdel-Reihim, R. Moehler and W. Reif (*Tech. Univ., Berlin, Fed. Rep. Ger.*).

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B19. Studies on cadmium addition to lead low-antimony alloy for battery application.

K. Ravi, K. Dakshinamurthy, P. Rao and V. Vasudeva (*Cent. Electrochem. Res. Inst., Karaikudi, India*).

Trans. Indian Inst. Met., 37 (1984) 263-6.

B20. Selenium - an important additive for lead-acid battery alloys.

B.E. Kallup and D. Berndt (*Varta Batterei A.-G., Kelkheim, Fed. Rep. Ger.*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 214-23.

B21. Anodic corrosion of lead in phosphoric acid solutions.

A.G. Mateescu and C.D. Mateescu (*Intreprinderea "Accumulatorul", Bucharest, Romania*).

Rev. Chim., 35 (1984) 933-6.

B22. Corrosion of lead and its alloys in mixed sulfuric acid - phosphoric acid solutions.

S. Sternberg, A.G. Mateescu, V. Branzoi and C.D. Mateescu (*Inst. Politeh., Bucharest, Romania*).

Rev. Chim., 35 (1984) 1108-13.

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J. Alzeiu, N. Koechlin, N. Lecaude and J. Robert (*Lab. de Genie Electrique de Paris, Gif-sur-Yvette, France*).

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B24. Mechanism of the processes during anodic oxidation of a lead electrode in sulfuric acid solutions.

D. Pavlov (*Cent. Lab. Electrochem. Power Sources, Sofia, Bulgaria*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 110-25.

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B.K. Mahato and J.L. Strebe (*Johnson Controls Inc., Milwaukee, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 154-65.

B26. Resolution of discrepancies in the electrochemical polarization behaviour of lead anodes positive to the lead dioxide/lead sulfate equilibrium potential.

M.E. Fiorino (*AT&T Bell Labs., Murray Hill, NJ, USA*).

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B27. The electrochemical and morphological behavior of lead and its alloys in 5M sulfuric acid.

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In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 181-9.

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B30. Electrochemical and photoelectrochemical oxidation of the passive film on Pb containing a preformed PbO layer in H_2SO_4.

R.G. Barradas and D.S. Nadezhdin (*Carleton Univ., Ottawa, Canada*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 126-141.

B31. Photoelectrochemical characterization of lead corrosion films.

G.H. Brilmyer (*Johnson Controls Inc., Milwaukee, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 142-153.

B32. Research in lead marketing.

J.F. Cole (*ILZRO, New York, USA*).

Metall (Berlin), 39 (1985) 844-6.

C. POSITIVE PLATES (LEAD(IV) OXIDES)

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D. Pavlov, E. Bashtavelova and V. Iliev (*Cent. Lab. Electrochem. Power Sources, Sofia, Bulgaria*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 16-32.

C15. Structural studies on lead dioxides.

R. Varma, J. Eckert, V.A. Maroni, J.A. Goldstone, C. Giordano, T. Cehelnik, R. Kumar, S. Siegel and B. Tani (*Argonne Natl. Lab., IL 60439, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 44-58.

C16. The crystallography and hydrogen content of lead oxides and sulfates.

R.J. Hill, A.M. Jessel and I.C. Madsen (*CSIRO, Div. Min. Chem., Port Melbourne, Vic. 3207, Australia*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 59-77.

C17. Kinetic and structural changes of the porous lead dioxide electrode during charge.

P. Ekdunge and D. Simonsson (*R. Inst. Technol., Stockholm, Sweden*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 252-66.

C18. Utilization of active material in lead dioxide electrodes.

A.D. Turner, P.T. Moseley and J.L. Hutchison (*AERE Harwell, Oxon, UK*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 267-76.

C19. Effect of anisotropic graphite on discharge performance of positive plates in pasted-type lead-acid batteries.

A. Tokunaga, M. Tsubota, K. Yonezu and K. Ando (*Japan Storage Battery Co., Ltd., Kyoto, Japan*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 314-22.

C20. Electrochemical investigations on the kinetics of the growth of lead dioxide layers on lead.

J.P. Pohl and W. Schendler (*Univ. Dortmund, Fed. Rep. Ger.*).

J. Power Sources, 13 (1984) 101-13.

C21. Electrodeposited alpha lead-dioxide and beta lead-dioxide in sulfuric acid: recharge, cycling and morphology.

H. Nguyen Cong and P. Chartier (*Univ. Louis Pasteur, Strasbourg, France*).

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C22. Effect on cathodic reduction of beta lead-dioxide in sulfuric acid solution of surface concentration of lead(II) ions formed on beta lead-dioxide.

Z. Takehara and K. Kanamura (*Kyoto Univ., Japan*).

Electrochim. Acta, 29 (1984) 1643-8.

C23. A comparative study of the particle size of lead oxide in lead-acid battery.

Y.Y. Wang, C.F. Chang and C.C. Wan (*Tsing Hua Univ., Hsinchu, Taiwan*).

J. Chin. Inst. Chem. Eng., 15 (1984) 169-76.

C24. An impedance study of the positive plate of lead-acid battery: identification of the electrode polarizations.

M. Keddam, C. Rakotomavo and H. Takenouti (*Univ. Pierre et Marie Curie, Paris, France*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 277-287.

C25. Studies on the microstructure of the positive lead-acid battery plate and its electrochemical behaviour.

A. Kita, Y. Matsumaru and J. Yamashita (*Yuasa Battery Co., Ltd., Osaka, Japan*).

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C26. Incorporation of hydrogen into lead dioxide by a surface hydrolysis mechanism.

R.J. Hill and M.R. Houchin (*CSIRO, Div. Min. Chem., Port Melbourne, Vic. 3207, Australia*).

Electrochim. Acta, 30 (1985) 559-61.

C27. Hydrogen ionization at positive electrodes in a lead battery under forced feed conditions.

E.A. Khomskaya and N.F. Gorbacheva (*Sarat. Gos. Univ., Saratov, USSR*).

Elektrokhimiya, 21 (1985) 122-5.

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H. Dietz, J. Garche and K. Wiesener (*Dresden Tech. Univ., Ger. Dem. Rep.*).

J. Power Sources, 14 (1985) 305-19.

C29. Effect of phosphoric acid addition on the characteristics of lead-acid battery cathode.

O.Z. Rasina, I.A. Aguf and M.A. Dasoyan (*USSR*).

Zh. Prikl. Khim., 58 (1985) 1039-44.

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N. Anastasijevic, J. Garche, K. Wiesener, I. Doroslovacki and P. Rakin (*Dresden Univ. Technol, Ger. Dem. Rep.*).

J. Power Sources, 14 (1985) 277-84.

C31. Potentiostatic step experiments on pasted lead-antimony and lead-tin-calcium electrodes.

J.A. Bialacki, N.A. Hampson and F. Wilson (*Loughborough Univ., UK*).

J. Appl. Electrochem., 15 (1985) 99-105.

C32. A study of the preparation variables of tubular positive electrodes for lead/acid batteries.

H.W. Yang, Y.Y. Wang and C.C. Wan (*Tsing Hua Univ., Hsinchu, Taiwan*).

J. Power Sources, 15 (1985) 45-57.

C33. Positive plates in traction batteries.

W.G.A. Baldsing, K.K. Constanti, J.R. Gardner, R.J. Hill and D.A.J. Rand (*CSIRO, Div. Min. Chem., PO Box 124, Port Melbourne, Vic. 3207, Australia*).

ILZRO Project LE-290, International Lead Zinc Research Organization, Inc., Prog. Rep. No. 9, January-June 1985, 43 pp.

D. NEGATIVE PLATES

D7. The influence of organic expanders on the kinetics of the lead electrode.

G. Hoffman and W. Vielstich (*Univ. Bonn, Fed. Rep. Ger.*).

J. Electroanal. Chem., 180 (1984) 565-76.

D8. Battery expanders and their use.

G. Szara (*Borregaard Chem., Sarpsborg, Norway*).

Improvements in Alloys, Oxides and Expanders for Lead Batteries. International Meeting of Battery Technologists and Lead Industry Representatives, 1984, Lead Development Assoc., London, UK, pp. 15-16.

D9. Improvement of the quality of negative plates in a lead-acid battery with surfactants.

Q.Q. Ngo and B.T. Phan (*Vien Hoa Hoc, Vien. K.H.V.N., Vietnam*).

Tap Chi Hoa Hoc, 22 (1984) 20-2.

D10. Negative composite grids for lead secondary batteries.

J.C. Viala, M. El Morabit, J. Bouix, D. Micheaux and G. Dalibard (*CNRS, Villeurbanne, France*).

J. Appl. Electrochem., 15 (1985) 421-9.

D11. Effect of antimony on lead-acid battery negative.

B.K. Mahato, J.L. Strebe, D.F. Wilkinson and K.R. Bullock (*Johnson Controls Inc., Milwaukee, USA*).

J. Electrochem. Soc., 132 (1985) 19-23.

D12. Oxygen reduction on negative electrodes of a lead-acid cell.

E.A. Khomskaya, N.F. Gorbacheva, T.V. Arkhipova and N.F. Burdanova (*Sarat. Gos. Univ., Saratov, USSR*).

Elektrokhimiya, 21 (1985) 363-6.

E. ASPECTS OF MANUFACTURE

E9. Production, phase composition, and microstructure of battery pastes.

D. Pavlov, V. Iliev and G. Papazov (*Cent. Lab. Electrochem. Power Sources, Sofia, Bulgaria*).

Khim. Istochniki Toka, L., 1984, pp. 18-23.

E10. Battery processing. I. Kinetics of growth of basic lead sulfates during battery plate curing.

G.E. Mayer (*Mellon Inst., Pittsburgh, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 98-109.

E11. Development document for effluent limitations guidelines and standards for the battery manufacturing point source category. Volume 2. Subcategory: lead.

US Environmental Protection Agency.

Report No. EPA/440/1-84/067-VOL-2; 1984, 704 pp.

E12. Soil pollution by lead, antimony and cadmium around a factory manufacturing mainly lead-acid storage battery.

T. Asami, S. Homma and M. Kubota (*Ibaraki Univ., Japan*).

Ningen to Kankyo, 10 (1984) 3-8.

E13. Processing of chlorine-containing flue dust from the smelting of scrap batteries in a shaft furnace.

G Ressler, W. Uhlig, L. Mueller and W. Dittrich (*VEB Berbau- und Heuttenkombinat "Albert Funk", Freiberg, Ger. Dem. Rep.*).

Banyasz. Kohasz. Lapok, Kohasz., 117 (1984) 376-80.

E14. Study and models of total lead exposures of battery workers.

C. Chavalitnitikul, L. Levin and L. Chen (*Drexel Univ., Philadelphia, USA*).

Am. Ind. Hyg. Assoc. J., 45 (1984) 802-8.

E15. The risk of occupational lead exposure.

Y. Wang, P. Lu, M. Shao, S. Chen, Y. Wu, Z. Zheng and Y. Ren (*Shanghai ist Med. Coll., Peop. Rep. China*).

Chin. Med. J., 97 (1984) 631-8.

E16. Industrial lead exposure: a review of blood lead levels in South Island (New Zealand) industries, 1974-83.

D. Hinton, B.C.L. Cresswell, E.D. Janus and W.A. Malpress (*Princess Margaret Hosp., Christchurch, NZ*).

N.Z. Med. J., 97 (1984) 769-73.

E17. Adult lead poisoning.

G.S. Zatlin, E.M. Senaldi, A.H. Bruckheim (*St. Mary Hospital, Hoboken, NJ, USA*).

Am. Fam. Physician (US), 32 (1985) 137-44.

F. CHARGING AND DISCHARGING

F11. Prolonged useful life and reduced maintenance of lead-acid batteries by means of individual cell voltage regulation.

S. Bergvik and L. Bjorkstrom (*Ericsson Power Syst., Stockholm, Sweden*).

INTELEC '84. International Telecommunications Energy Conference, 1984, pp. 63-6.

F12. A new concept: intermittent charge of lead-acid batteries in telecommunication systems.

D.P. Reid and I. Glasa (*Bell-Northern Res. Ltd., Ottawa, Canada*).

INTELEC '84. International Telecommunications Energy Conference, 1984, pp. 67-71.

F13. Rapid charging of lead-acid storage battery.

Q.S. Xu, D.C. Kuai and S.C. Dian (*Peop. Rep. China*).

Tianjin Keji Publ. House, Tianjin, China, 1984, 180 pp.

F14. The effect of tin on the charge acceptance of the positive lead acid battery electrode.

H.K. Geiss (*Accumulatoren- Fabrik Oerlikon, Zurich, Switzerland*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 241-251.

F15. Cutting maintenance on lead-acid batteries.

M. Mayer (*Lead Development Assoc., London, UK*).

Electr. Times, November 1984, 27-8.

F16. The charging of lead-acid batteries with gelled electrolyte.

B.L. McKinney, B.K. Mahato and K.R. Bullock (*Johnson Controls Inc., Milwaukee, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 426-440.

F17. Brussels Electric Vehicle Experiment. Influence of accelerated charging on an urban fleet of rented vehicles. Use of a high-frequency charger.

G. Maggetto, F. Heymans and J.-L. van Eck (*Vrije Univ., Bruxelles, Belgium*).

7th International Symposium on Electric Vehicles, 26-29 June 1984, Versailles, France, 79-84.

F18. The HOC on-board charging system-design and operating experience.

K. Gutzeit (*Accumulatorenwerke Hoppecke, Carl Zoellner & Sohn GmbH, Brilon, Fed. Rep. Ger.*).

7th International Symposium on Electric Vehicles, 26-29 June 1984, Versailles, France, pp. 85-7.

F19. General requirements for energy supply equipment for electric vehicle batteries.

P. Kolen and M. Bruhl (*GES, Essen, Fed. Rep. Ger.*).

7th International Symposium on Electric Vehicles, 26-29 June 1984, Versailles, France, pp. 88-92.

F20. An integrated battery powered vehicle controller/charger system.

P.G. Clarke, B. Revell and D. Walker (*Chloride Legg Ltd., Wolverhampton, UK*).

Electr. Veh. Dev. (GB), 19 (1984) 15-16.

F21. Experimental battery state-of-charge indicator for armored fighting vehicles.

J.E. Cooling (*Loughborough Univ., UK*).

Surf. Technol., 24 (1985) 15-28.

F22. An instrument for determining the charge level of lead storage batteries.

W. Schleuter, H.-P. Schoner, W. Steffens and G. Wille (*RWTH, Aachen, Fed. Rep. Ger.*).

Elektrotech. & Maschinenbau (EuM), 102 (1985) 82-7.

F23. Second-order harmonic in the current response to sinusoidal perturbation voltage for lead-acid battery. An application to a state-of-charge indicator.

S. Okazaki, S. Higuchi and S. Takahashi (*Gov. Ind. Res. Inst., Osaka, Japan*).

J. Electrochem. Soc., 132 (1985) 1516-20.

F24. Mechanism of processes during anodic charging of a lead oxide electrode.

A.M. Litvak, A.L. Martynov and N. Yu. Lyzlov (*USSR*).

Zh. Prikl. Khim., 58 (1985) 926-9.

F25. Effects of depth of discharge on the total energy transfer in near term batteries.

K. Kordesch and K. Tomantschger (*Inst. Hydrogen Syst., Mississauga, Canada*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 323-35.

F26. Discharge capacity of sealed lead-acid batteries and its dependence on cell constructions.

K. Mori and K. Asai (*Nippon Denchi Co. Ltd., Kyoto, Japan*).

GS News Tech. Rep., 44 (1985) 5-10.

F27. Discharge characteristics of sealed lead-acid batteries and their dependence on cell constructions.

K. Mori and K. Asai (*Nippon Denchi Co. Ltd., Kyoto, Japan*).

GS News Tech. Rep., 44 (1985) 11-15.

G. TESTING AND PERFORMANCE

G15. The impact of urban driving schedules on the thermal management of lead-acid batteries for electric vehicles.

B.L. McKinney and G.H. Brilmyer (*Johnson Controls Inc., Milwaukee, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 348-59.

G16. Performance of improved lead acid batteries for electric vehicles.

K.R. Bullock, B.K. Mahato, G.H. Brilmyer and G.L. Wierschem (*Johnson Controls Inc., Milwaukee, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 451-65.

G17. Lead-acid battery for electric bus, its structure, characteristics and practical performance.

K. Ando (*MITI, Tokyo, Japan*).

7th International Symposium on Electric Vehicles, 26-29 June 1984, Versailles, France, pp. 63-8.

G18. Comparison between laboratory tests and actual service performances of lead-acid batteries for electric vehicle.

R. Buccianti, L. Thione, A. Fiordimela and P. Menga (*CESI, Milan, Italy*).

7th International Symposium on Electric Vehicles, 26-29 June 1984, Versailles, France, pp. 69-77.

G19. Thermal management of EV battery systems.

P.K. Birch (*Elektronikcentralen, Hoersholm, Denmark*).

Electr. Veh. Dev. (GB), 19 (1984) 16-17; 30.

G20. Influence of ambient temperature on the cycle life of tubular-type lead-acid batteries under galvanostatic cycling.

S. Higuchi, S. Okazaki, Y. Takada, O. Nakamura, I. Ogino and S. Takahashi (*Gov. Ind. Res. Inst., Osaka, Japan*).

Denki Kagaku, 53 (1985) 472-5.

G21. Effect of temperature on characteristics of sealed lead battery.

N.K. Grigalyuk and T.P. Chizhik (*USSR*).

Khim. Istochniki Toka, L., (1984) 34-6.

G22. Design aspects and performance characteristics of sealed gas recombination automotive batteries.

K. Peters and N.R. Young (*Chloride Tech. Ltd., Manchester, UK*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 481-8.

G23. Sealed lead-acid battery tester.

C. Cunningham.

Electron. Eng. (GB), 57 (1985) 26, 30.

G24. The comparison of flooded, gelled and immobilized lead-acid batteries.

B.L. McKinney, T.J. Dougherty and M. Geibl (*Johnson Controls Inc., Milwaukee, USA*).

INTELEC '84. International Telecommunications Energy Conference, 1984, pp. 41-4.

G25. Effect of cycling on active material morphology in gelled electrolyte lead-acid batteries.

A.C. Simon and S.M. Caulder (*ILZRO at George Mason Univ., Fairfax, Va, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 415-425.

G26. Cycle life of stressed lead-acid batteries.

J. Alzieu and J. Robert (*CNRS, Gif-sur-Yvette, France*).

J. Power Sources, 13 (1984) 93-100.

G27. Design and performance of high power density starting batteries.

R.T. Johnson and D.A. Thuerk (*Johnson Controls Inc., Milwaukee, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 489-503.

G28. Battery design. I. CCA yields of SLI batteries.

G.E. Mayer and S.E. Ross (*Mellon Inst., Pittsburgh, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 512-21.

G29. Durability of stationary lead accumulators under constant voltage.

T. Gerber.

Tech. Mitt. PTT, 62 (1984) 398-412.

G30. Short circuit currents in uninterruptible power source batteries.

B. McKinney, W. Tiedemann and J. Newman (*Johnson Controls Inc., Milwaukee, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 360-377.

G31. 500-kW lead-acid battery for peak-shaving energy storage testing and evaluation.

R.N. McClellan and S.L. Deshpande (*GNB Batteries Inc., Langhorne, PA, USA*).

Electric Power Research Institute, Rep. No.: EPRI-EM-3707, 1984, 57 pp.

G32. Performance of advanced lead-acid batteries for load-leveling applications.

J.F. Miller, E.C. Gray, F. Hornstra and N.P. Yao (*Argonne Natl. Lab., IL, USA*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 522-527.

G33. In situ conductance measurements of lead accumulator plates.

M. Calabek and K. Micka (*Tech. Univ., Brno, Czechoslovakia*).

In K.R. Bullock and D. Pavlov (eds.), Advances in Lead-Acid Batteries, Electrochem. Soc., Proc. Vol. 84-14, 1984, pp. 288-301.

G34. Development and optimization of a bipolar lead-boron tetrafluoride accumulator. First part.

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CA: 103(10) 74922u.

J241. Instant lead-acid batteries.
Furukawa Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8550860 A2; JP 6050860; 20 March, 1985.
CA: 103(14) 107670r.

J242. Cathodes for instantly activated lead-acid battery.
Furukawa Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8550862 A2; JP 6050862; 20 March, 1985.
CA: 103(4) 25014r.

J243. Lead-acid battery.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8547376 A2; JP 6047376; 14 March, 1985.
CA: 103(4) 25013q.

J244. Electrodes for sealed lead-acid batteries.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8547377 A2; JP 6047377; 14 March, 1985.
CA: 103(10) 73874t.

J245. Sealed lead-acid batteries.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8549572 A2; JP 6049572; 18 March, 1985.
CA: 103(14) 107669x.

J246. Production of battery cathodes.
S. Potuznik and E. Fluck (*Switzerland*).
European Pat. Appl.; EP 135619 A1; 3 April, 1985.
CA: 103(4) 25036z.

J247. Sealed lead-acid batteries.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8563877 A2; JP 6063877; 12 April, 1985.
CA: 103(12) 90485j.

J248. Sealed lead-acid batteries.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8563878 A2; JP 6063878; 12 April, 1985.
CA: 103(12) 90486k.

J249. Sealed lead-acid batteries.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8563879 A2; JP 6063879; 12 April, 1985.
CA: 103(12) 90484h.

J250. Grids for lead-acid batteries.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8565458 A2; JP 6065458; 15 April, 1985.
CA: 103(12) 90474e.

J251. Sealed lead-acid batteries.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8565474; JP 6065474; 15 April, 1985.
CA: 103(12) 90476g.

J252. Active material for lead storage battery electrodes.
P. Mirebeau, G. Chedeville and E. Genies (*Comp. Europeenne d'Accumulateurs*).
France Demande; FR 2553581 A1; 19 April, 1985.
CA: 103(14) 107714h.

J253. Manufacture of lead battery.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8574360 A2; JP 6074360; 26 April, 1985.
CA: 103(14) 107685z.

J254. Manufacture of electrode grids for lead-acid batteries.
Furukawa Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8574266 A2; JP 6074266; 26 April, 1985.
CA: 103(14) 107689d.

J255. Manufacture of lead battery.
Sanyo Electric Corp.
Japan Kokai Tokkyo Koho; JP 8577356 A2; JP 6077356; 1 May, 1985.
CA: 103(20) 163523g.

J256. Tubular cathodes for lead-acid batteries.
E. Dorl and K.D. Schulle (*VEB Fahrzengelektrik*).
Germany (East); DD 221882 A1; 2 May, 1985.
CA: 103(18) 144863b.

J257. Manufacture of lead-battery electrode.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8579668 A2; JP 6079668; 7 May, 1985.
CA: 103(16) 126538v.

J258. Manufacture of lead battery.
Sanyo Electric Co., Ltd.,
Japan Kokai Tokkyo Koho; JP 8579669 A2; JP 6079669; 7 May, 1985.
CA: 103(16) 126537u.

J259. Electric batteries.
A.J. Mason, G.J. May and M. Turner (*Tungstone Batteries, UK*).
European Pat. Appl.; EP 140581 A2; 8 May, 1985.
CA: 103(8) 56825k.

J260. Grid for lead battery.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8581769 A2; JP 6081769; 9 May, 1985.
CA: 103(16) 126547x.

J261. Rapid charging of sealed lead-acid battery.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8581778 A2; JP 6081778; 9 May, 1985.
CA: 103(18) 144826s.

J262. Antimony-free lead battery.
Japan Storage Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8584769 A2; JP 6084769; 14 May, 1985.
CA: 103(16) 126537u.

J263. Antimony-free lead battery.
Japan Storage Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8584770 A2; JP 6084770; 14 May, 1985.
CA: 103(16) 126536t.

J264. Manufacture of lead battery.
Sanyo Electric Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8586758 A2; JP 6086758; 16 May, 1985.
CA: 103(18) 144839y.

J265. Anode for lead-acid battery.
Furukawa Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8589072 A2; JP 6089072; 18 May, 1985.
CA: 103(12) 90500k.

J266. Formation of lead-acid battery electrode.
Furukawa Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8593756 A2; JP 6093756; 25 May, 1985.
CA: 103(20) 163539s.

J267. Lead-acid battery.
Yuasa Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 8597552 A2; JP 6097552; 31 May, 1985.
CA: 103(14) 107709k.

J268. Maintenance-free electric battery with gas recombination.
J.A. Lopez-Doriga (*Sociedad Española del Accumulador Tudor S.A.*).
Spain; ES 524556 A1; 1 June, 1985.
CA: 103(16) 126592h.

J269. Through-the-partition intercell connection and method.
T.D. Juergens (*Gates Energy Products, Inc.*).
US 4521498 A; 4 June, 1985.
CA: 103(8) 56855v.

J270. Lead-acid recombination cells.
I.K. Gibson, K. Peters and G.C. Platt (*Chloride Group PLC, UK*).
European Pat. Appl.; EP 143666 A2; 5 June, 1985.
CA: 103(10) 73893y.

J271. Manufacture of lead-battery electrodes.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85101867 A2; JP 60101867; 5 June, 1985.
CA: 103(18) 144845x.

J272. Preparation of battery anode.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85107263 A2; JP 60107263; 12 June, 1985.
CA: 103(14) 107719p.

J273. Sealed lead storage battery.
Matsushita Electric Industrial Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85109167; JP 60109167; 14 June, 1985.
CA: 103(12) 95016s.

J274. Manufacture of lead-battery electrode.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85112252 A2; JP 60112252; 18 June, 1985.
CA: 103(18) 144851w.

J275. Lead-acid battery.
Japan Storage Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85112255 A2; JP 60112255; 18 June, 1985.
CA: 103(18) 144855a.

J276. Lead-battery anode.
Shin-kobe Electric Machinery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85112256 A2; JP 60112256; 18 June, 1985.
CA: 103(18) 144852x.

J277. Battery electrode.
Furukawa Battery Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85112259 A2; JP 60112259; 18 June, 1985.
CA: 103(20) 163554t.

J278. Device for applying a paste on a battery grid.
D. Yanik (*Wirtz Mfg. Co., Inc., USA*).
Germany Offen.; DE 3445739 A1; 27 June, 1985.
CA: 103(10) 73908g.

J279. Cathode active material for lead-acid battery.
Mitsui Mining and Smelting Co., Ltd.
Japan Kokai Tokkyo Koho; JP 85121673 A2; JP 60121673; 29 June, 1985.
CA: 103(20) 163565x.

J280. Thin tubular positive electrodes for lead-acid batteries.
E.G. Sundberg (*USA*).
US 504472 (830615); 27 August, 1985.
CA: 103(20) 163567z.

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