

LABAT'93
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Presented papers

A lead-acid battery for the new millennium

R.Nelson, ILZRO, Research Triangle Park, USA

PbO₂ ELECTRODE SYSTEMS

Methods for suppression of the premature capacity loss (PCL) based on the gel-crystal concept for PbO₂

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Phenomena of premature capacity loss in lead-acid batteries with antimony-free grids during cycling under constant-voltage-charging conditions

H.Dietz, H.Niepraschk, K.Wiesener, Dresden University of Technology, Institute of Physical Chemistry and Electrochemistry, Dresden, Germany

J.Garche, Center for Solar Energy and Hydrogen Research, Energy Storage, Ulm, Germany

J.Bauer, V.B.Autobatterien GmbH, Hannover, Germany

Influence of recharging potential and acid concentration on discharge behaviour of PbO₂ electrodes

E.Meissner, Varta Batterie AG, R & D Centre, Kelkheim, Germany

On the aggregate of spheres model theoretical considerations

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PbO₂ -active mass as an electrocrystalline network

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Possibilities to reduce/avoid the passivation of the positive electrode of the lead-acid battery

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Premature capacity loss of pure lead positive plate. An example of preferential discharge in the near grid region

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New data on the energetic coefficient of the positive plate of lead-acid batteries

C.D'Alkaine, Federal University of Sao Carlos, Department of Chemistry, Sao Carlos, Brazil

Resistance measurements of the grid/active mass interface

M.Calabek, Technical University, Dept. of Electrotechnology, Brno, Czech Republic

K.Micka, Heyrovsky Institute of Physical Chemistry and Electrochemistry, Prague, Czech Republic

LEAD ALLOYS AND THEIR ANODIC OXIDATION

New aspects of the solid phase equilibria in the ternary (Pb, Sn, Ca) system, for x_{Ca} < 25 at.%

J.Hertz, C.Fornasieri, J.P.Hilger, M.Notin, Universite de Nancy I, Laboratoire de Thermodynamique Metallurgique, Vandoeuvre-les-Nancy, France

Developments in lead alloys for lead-acid batteries

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Corrosion in open-circuit of lead alloys positive grids

H.Brequel, J.P.Hilger, J.Steinmetz, J.Hertz, Universite de Nancy I, Vandoeuvre-les-Nancy Cedex, France

Experimental study on the model of alkalization of the PbSO₄ anodic layer

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Kinetics and mechanism of the lead electrode reactions

J.R.Vilche, INIFTA, Corrosion section, La Plata, Argentina

Anodic behaviour of lead in sulfuric acid solution: influence of the antimony content

R.Babic, M.Metikos-Hukovic, University of Zagreb, Faculty of Chemical Engineering and Technology, Institute of Electrochemistry, Zagreb, Croatia
S.Brinic, Z.Grubic, University of Split, Faculty of Technology, Split, Croatia

Influence of Sb on the amorphization of the corrosion layer

B.Monahov, D.Pavlov, Central Laboratory of Electrochemical Power Sources, Sofia, Bulgaria

Property of lead alloy with over-low antimony

L.S.Yang, Z.Q.Shan, C.Y.Yang, Y.W.Zhou, Tianjin University, Dept. of Applied Chemistry, Tianjin, China

Anodic behaviour of Pb-Sn alloys in H₂SO₄ solutions

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K.Salmi, G.Sundholm, Helsinki University of Technology, Dept. of Physical Chemistry, Espoo, Finland

Catalytic effect of bi on the formation of lead (IV) oxides on Pb-Bi alloys in H₂SO₄ solutions

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Joining of lead-antimony and lead-calcium alloy lugs by a laboratory cast-on-strap joining process

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The lead alloys for the maintenance-free and sealed lead-acid batteries

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VALVE-REGULATED BATTERIES. BATTERY CHARGE, DISCHARGE AND TESTING

Valve regulated lead-acid batteries. Systems, properties and application

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Ten minutes rechargeable valve regulated lead-acid battery even after deeply discharged and stood

T.Yazaku, Y.Ehara, K.Asai, J.Takahashi, Japan Storage Battery Co.,Ltd., Small Battery Division, Kyoto, Japan
K.Matsumoto, S.Kubotani, AIWA Co., Ltd., Technical Headquarters, Saitama, Japan

Evaluating the state of health of lead-acid flooded and valve-regulated batteries: a comparison of conductance testing vs. traditional methods

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Influence of acid-stratification on charge, discharge and self-discharge in lead-acid batteries (model type)

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Electrolyte stratification in lead-acid batteries: effect of grid Sb and relationship to capacity loss

L.Apateanu, A.F.Hollenkamp, M.J.Koop, CSIRO, Division of Mineral Products, Port Melbourne, Vic, Australia

Pulse charging recombinant lead-acid batteries with variable frequency tied to the state of charge

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The composite character of the discharge capacity of the lead-acid cell

N.F.Compagnone, Societa Industriale Accumulator (SINAC), R&D Department, Romano di Lombardi (BG), Italy

Impedance behaviour of the positive plate of lead-acid battery during the first cycle

Z.Stoynov, T.Kosev, B.Stoynova, V.Kantchev, Central Laboratory of Electrochemical Power Sources, Sofia, Bulgaria

Impedance behaviour of the positive plate during formation

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Fast charging of lead-acid batteries

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BTS600 a new approach for battery testing

R.Kiessling, Digatron Industrie-Elektronik GmbH, Aachen, Germany

Driving cycle testing of EV batteries and EV systems

D.D.Brandt, Bitrode Corporation, Fenton, Missouri, USA

A programmable power source for the investigation and testing of batteries

S.Gishin, Technical University, Dept. of Electrical Apparatus, Sofia, Bulgaria

BATTERY TECHNOLOGY

Performance characteristics of lead oxides in pasted lead-acid battery electrodes

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Processes during the production of lead-acid battery positive plates from 4PbO.PbSO₄ pastes

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Influence of the electrode paste composition on the characteristics of the active mass

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Influence of the current-carrying agents on the positive plate formation

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The influence of a rest period during anodic formation on the electrochemical behaviour of the positive electrode

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Energy consumption at lead-acid battery plates formation

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The processes in the positive plates during pickling before formation

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Wrapping technology for gas-recombination batteries

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Influence of the expander structure on the performance of the lead-acid battery negative plate

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Pasting with hydraulic power

D.Melnik, MAC Engineering and Equipment Company. Inc., Benton Harbor, MI, USA

Investigations on the corrosion behaviour of Pb-Ag-Sn alloy under the influence of A.C. superimposition

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MODELS

A simplifies model for the lead-acid battery

P.Ekdunge, The Royal Institute of Technology, Dept.Applied Electrochemistry, Stockholm, Sweden

Mathematical modelling and model validation for the lead-acid cell

J.Landfors, D.Simonsson, A.Sokirko, The Royal Institute of Technology, Dept. Applied Electrochemistry, Stockholm, Sweden

Modeling and optimization of the lead-acid battery characteristics

V.K.Luzhin, Moscow Power Engineering Institute, Dept. Chemistry, Moscow, Russia

Simulation of the photoelectric plants with use of the lead-acid battery as an energy storage

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Automatic device for standard porometry

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BATTERIES

Optimization of active material composition vor valve regulated laed-acid batteries

J.Kwasnik, J.D.Milewski, T.Pukacka, B.Szczesniak, Central Laboratory of Batteries and Cells, Poznan, Poland

Recent progress of sealed lead-acid batteries and their competitive batteries for various applications in Japan

A.Kozawa, H.Ogawa, IBA Inc., Nagoya, Japan

The application of a lead-acid/nickel-iron dual battery hybrid in a photovoltaic system

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SEPARATORS

Polypropylene material for separators

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SLI battery failure mode analysis PE envelope vs. cellulosic leaf-type separator

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Development of a new battery separator for enhanced electrochemical properties

S.L.Paik, Amerace, Microporous Products, Inc., Piney Flats, TN, USA

Nonwoven materials for lead-acid batteries

F.Steffens, Consulting Services, Neuchatel, Switzerland

The basis of the technology of waste and battery scrap processing

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