

LABAT'99,

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presented papers

ALABC - new directions

J.Cole, P.Moseley, ILZRO, INC., Research Triangle Park, NC, USA

VRLA BATTERIES

Challenges in materials for VRLA batteries for cycling service

R.D.Prengaman, RSR Technologies, Inc., Dallas, TX, USA

Increasing silver levels in lead-acid battery active materials: Effects on SLI battery performance

M.M.Lawrence, GNB Technologies, Mendota Heights, MN, USA

A study of improving the utilization of positive active material

X.Hu, X.Wu, L.Chen, J.Zhao, Y.Tong, R&D Center of Power Sources, Narada Battery Co., Ltd., Hangzhou, China

Oxygen transport mechanism in AGM wicking test device

E.Bashtavelova, A.Winsel, Universitat Gh-Kassel, Germany
A.Ferreira, AMER-SIL S.A., Kehlen, Luxembourg

Theoretical calculations for using positive electrode compression to increase lead-acid battery life

D.Edwards, University of Idaho, Mechanical Engineering Dept., Moscow, Idaho, USA
C.Schmitz, Institut für Solare Energieversorgungstechnik (ISET), Kassel, Königstor, Germany

Development of VRLA batteries for high rate discharge applications

J.-S. Chen, Dept. of Chemical Engineering, I-Shou University, Kaohsiung County, Taiwan
L.F.Wang, School of Chemistry, Kaohsiung Medical College, Kaohsiung, Taiwan

Influence of some factors on discharge characteristics of the sealed lead-acid cells

G.Kolikova, M.Barsukova, V.Bayunov, M. Lushina, Accumulator Institute JSC "NIAI Istochnik", Sankt-Petersburg, Russia

NEGATIVE PLATE

Multivariate analysis for characterization of expanders

B.Myrvold, Borregaard LignoTech, Sarpsborg, Norway
D.Pavlov, Central Laboratory of Electrochemical Power Sources, Bulgarian Academy of Sciences, Sofia, Bulgaria

A new generation of highly efficient expander products

D.Pavlov, T.Rogachev, M.Matrakova, Central Laboratory of Electrochemical Power Sources, Bulgarian Academy of Sciences, Sofia, Bulgaria
G.Rodsrud, B.Myrvold, Borregaard LignoTech, Sarpsborg, Norway

The effect of expanders on lead sulphate formation and reduction

C.Francia, M.Maja, P.Spinelli, Dept. of Materials Science and Chemical Engineering, Polytechnical University of Turin, Italy

Electrochemical techniques for the characterization of expander materials

C.Francia, M.Maja, P.Spinelli, Dept. of Materials Science and Chemical Engineering, Polytechnical University of Turin, Italy

F.Saez, S.E.A. TUDOR S.A., Exide Europe, R&D Laboratory, Azuqueca de Menares, Spain
B.Martinez, D.Marin, Dept. of Physical Chemistry, University of Alcala de Henares, Spain

EV BATTERIES

Advanced lead-acid battery for electric vehicles

M.Raghavan, Central Electrochemical Research Institute, Karaikudi, Tamil Nadu, India

Application of Peaks in the development of EV batteries

Q.Dengke, Guangzhou Storage Battery Enterprises Co., Ltd., Guangzhou, China

A practicable lead-acid battery used for EV application in China National Electric Vehicle Program

M.Zhang, R&D Dept., ZiBo Storage Battery Factory, ZiBo, ShanDong, P.R.China

POSITIVE PLATE

Thermal degradation of α - and β - PbO_2 and its relationship to capacity loss

R.Fitas, L.Zerroual, N.Chelali, B.Djellouli, Institute of Industrial Chemistry, The University of Setif, Algeria

Influence of PAM density on the cycle life of positive lead-acid battery plates

G.Papazov, B.Monahov, D.Pavlov, Central Laboratory of Electrochemical Power Sources, Bulgarian Academy of Sciences, Sofia, Bulgaria

Influence of fast charge on the interface grid/PAM of lead-acid batteries

D.Pavlov, G.Petkova, M.Dimitrov, Central Laboratory of Electrochemical Power Sources, Bulgarian Academy of Sciences, Sofia, Bulgaria
M.Shiomi, M.Tsubota, Japan Storage Battery Co., Ltd., Kyoto, Japan

Influence of fast charge on the structure and properties of lead-dioxide active mass

M.Dimitrov, D.Pavlov, Central Laboratory of Electrochemical Power Sources, Sofia, Bulgaria
M.Shiomi, M.Tsubota, Japan Storage Battery Co., Ltd., Kyoto, Japan

Grid technology and silver additive influence on VRLA-AGM battery performances for electric vehicle application

L.Torcheux, A.Villaran, M.Bellmunt, P.Lailler, SEAC-Exide, Gennevilliers, France

LEAD ELECTRODE, PbO_2 ELECTRODE

Influence of Ag on the oxygen evolution reaction on Pb/ PbO_2 electrode

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

In-situ analysis of electrochemical reaction at lead surface in sulfuric acid solution

Y.Yamaguchi, M.Shiota, Y.Nakayama, 1st Dept., Advanced Technology Center, Yuasa Corporation, Osaka, Japan
N.Hirai, S.Hara, Dept. of Materials Science & Processing, Faculty of Engineering, Osaka University, Yamadaoka, Suita, Japan

The electrochemical behavior of PbSO_4 with different structures on Pb

Y.Guo, L.Niu, S.Zhang, Shandong University, Dept. of Chemistry, Jinan, Shandong, P.R.China

The study of lead film electrodes on copper and aluminum substrates in course of electrochemical cycling in sulphuric acid solutions

L.Yolshina, V.Kudyakov, V.Zyryanov, Institute of High-Temperature Electrochemistry, Ekaterinburg, Russia

Electrochemical behavior of lead in different concentrations of sulfuric acid

A.Czerwinski, M.Zelazowska, M.Grden, K.Kuc, The University of Warsaw, Dept. of Chemistry, Warsaw, Poland

J.D.Milewski, A.Nowacki, G.Wojcik, M.Kopczyk, Central Laboratory of Cells and Batteries, Poznan, Poland

Dissolution and precipitation reactions of lead sulfate in positive and negative electrode of practical lead-acid battery

Z.Takehara, Department of Chemical Engineering, Faculty of Engineering, Kansai University, Osaka, Japan

An electrochemical study of the corrosion of Pb-Sb alloys in sulfuric acid solutions

T.Hirasawa, K.Sasaki, Saitama Research Lab., Shin-Kobe Electric Machinery Co., Ltd., Saitama, Japan

M.Taguchi, H.Kaneko, Dept. of Materials Science & Engineering, Akita University, Akita, Japan

Properties of grid lead alloys for maintenance-free batteries

C.D.Mateescu, National Institute of Materials Physics, Bucharest, Romania

G.A.Mateescu, Acumulatorul S.A., Bucharest, Romania

Electrical field strength dependence on the ratio of the electro-optical effect over the electro-optical effect at saturation of the lead dioxide particles suspension in an acidulous solution

N.Saidi, H.Saidi, B.Saidani, Chemistry Processing Institute, University of Bejaia, Bejaia, Algeria

S.Stoylov, Institute of Physical Chemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria

A conductivity study of the lead dioxide particles in the acid solution of H₂SO₄ with the presence of Sb, Sn, As

N.Saidi, B.Saidani, Chemistry Processing Institute University of Bejaia, Bejaia, Algeria

S.Stoylov, Institute of Physical Chemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria

On the activity of chemical and electrochemical β PbO₂

Z.Nouis, N.Chelali, L.Zerroual, R.Fitas, Institute of Industrial Chemistry, The University of Setif, Algeria

TECHNOLOGY

New technology of battery lead powder production

L.Khegai, JV Elvar, Minsk, Byelarusia

A.Rusin, JSC Electrotiaga, St. Petersburg, Russia

Improving the performance of a high power, lead-acid battery with paste additives

D.Edwards, T.C.Dayton, Mechanical Engineering Dept., University of Idaho, Moscow, ID, USA

Effect of electrochemically oxidized carbon colloid on lead -acid batteries

T.Kimura, Dept. of Molecular Design and Engineering, Nagoya University, Nagoya, Japan

A.Ishiguro, Y.Andou, K.Fujita, Tohmitsu Research Laboratory, Nagoya, Japan

Influence of the method of 4PbO.PbSO₄ preparation on the performance of lead-acid batteries

D.Pavlov, S.Ruevski, Central Laboratory of Electrochemical Power Sources, Bulgarian Academy of Sciences, Sofia, Bulgaria

P.Eirich, A.Burschka, Maschinenfabrik Gustav Eirich, Hardheim, Germany

Investigation on soaking and formation of lead-acid battery plates with different mass structure

I.Dreir, P.Scharf, R.Wagner, EXIDE German Group R&D Centre, Accumulatorenfabrik Sonnenschein, Buding, Germany

F.Saez, S.E.A. TUDOR S.A., Exide Europe, R&D Laboratory, Azuqueca de Menares, Spain

A practical method to follow microstructure evolution during formation processes

C.D'Alkaine, Battery Lab., GEP, DQ-UFSCar., Sao Carlos, SP, Brazil

J. De Antrade, P.R.Impinnisi, Battery Lab., MRG, LAC, COPEL, Curitiba, PR, Brazil

Optimization of pulsed formation parameters of positive plates

F.Diniz, L.Borges, Universidade Federal de Pernambuco, DQF/UFPE, Cidade

Universitaria, Recife, PE, Brazil

Dynamics of composition of positive plates during the preformation period

F.Diniz, L.Borges, Laboratorio de Eletroquimica, Dept. de Quimica Fundamental CCEN-UFPE,

Cidade Universitaria, Recife, PE, Brazil

The porosity of the lead-acid battery active masses

G.A.Mateescu, C.Cernea, Acumulatorul S.A., Bucharest, Romania

C.D.Mateescu, V.S.Teodorescu, National Institute of Materials Physics, Bucharest, Romania

The low cost cast on strap machine for small and medium size battery manufacturers

G.Vlahovic, Iberian Battery Consultants Corporation, Grafton, WI, USA

Automatic production of VRLA cells

A.Schwetz, BM-Battery Machines Maschinenbau, GmbH, Sebersdorf, Austria

Production of lead-calcium alloy for accumulators

L.Khegai, JV Elvar, Minsk, Byelarusia

A.Rusin, JSC Electrotiaga, St. Petersburg, Russia

V.Lata, Kazakhstan Academy of Sciences, Alma-Aty, Kazakhstan

Some methods of desulphatization of lead-acid batteries

P.Rakin, O.Upi, Z.Rakin, Chemical Power Sources Institute, Belgrade, Serbia

A.Rusin, JSC Elektrotjaga, Sankt Petersburg, Russia

Investigation of the accumulator pastes with potassium carbonate

V.Yanakieva, G.Haralampiev, N.Lyakov, University of Chemical Technology and Metallurgy, Sofia, Bulgaria

Processing of wastes from production of lead accumulators

V.Lata, Kazakhstan Academy of Sciences, Alma-Aty, Kazakhstan

A.Rusin, JSC Elektrotjaga, St. Petersburg, Russia

L.Khegai, JV Elvar, Minsk, Byelarusia

BATTERY OPERATION and BATTERY TESTING

Influence of grid design on current distribution over the electrode surface in a lead-acid battery

M.Calabek, Institute of Electrotechnology, Brno, Czech Republic

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

Acid stratification and vertical current distribution: An experimental and theoretical explanation of a major ageing effect of lead-acid batteries in PV systems

F.Mattera, D.Demesttre, GENEC - Centre de Caderache, Saint-Paul-Lez-Durance, France

D.U.Sauer, M.Rosa, Fraunhofer Institute for Solar Energy Systems ISE, Freiburg, Germany

A method for measurement and interpretation of impedance spectra for industrial batteries

E.Karden, S.Buller, R.W.De Doncker, Aachen University of Technology (RWTH), Institute for Power Electronics and Electrical Drives (ISEA), Aachen, Germany

Polycomponent dynamic stands for testing chemical sources of current

V.Vlasenkov, Technical University, Komsomolsk-na-Amure, Russia

L.Khegai, JV Elvar, Minsk, Byelarussia

Laboratory system for active control, data collection and analysis of three-electrode electrochemical cells

K.Belov, Central Laboratory of Mechatronics and Instrumentation, Bulg.Acad.Sci, Sofia, Bulgaria

M.Mladenov, AKUTECH Ltd., Sofia, Bulgaria

B.Banov, *A.Momchilov*, Central Laboratory of Electrochemical Power Sources, Bulg.Acad.Sci, Sofia, Bulgaria

Diagnostic system for quality control in polyethylene separators production

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B.Trendafilov, Bulgaria Investment Holding, Bulgaria