

## Recent publications on lead/acid batteries and related phenomena: 1995, Nos. 1 & 2, B1–B20

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### Abstract

The aim of this abstracting service is to provide workers with a review of paper 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 intention 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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#### I. A. Battery components (lead(II) oxides, electrolyte, separators, etc.)

A45.

Application of semi-carbonized wood ash in storage battery.

T. Li

State-Run No. 481, Shangdong 255056, Peop. Rep. China.

Dianchi, 25 (1995) 25-7.

CA: 123(2) 13627t.

A46.

Separator design for valve-regulated lead/acid batteries.

B. Culpin

Chloride Industrial Batteries Ltd., PO Box 5, Clifton Junction, Swinton, Manchester M27 8LR, UK.

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J. Power Sources, 53 (1995) 127-35.

CA: 122(2) 244049b.

A47.

Battery separator design requirements and technology improvements for the modern lead/acid battery.

M.J. Weighall

Cookson Entek Ltd., Mylord Crescent, Camperdown Industrial Estate, Killingworth, Newcastle upon Tyne NE 12 0XG, UK.

J. Power Sources, 53 (1995) 273-82.

CA: 122(20) 244065d.

A48.

Rubber separators for tomorrow: performance characteristics and selection guide.

S.L. Paik and G. Terzaghi  
*Amerace, Microporous Products, Inc., 596 Industrial Park  
 Road, Piney Flats, TN 37686, USA.*  
*J. Power Sources*, 53 (1995) 283-7.  
 CA: 122(24) 295228s.

A49.  
 Technical compatibility and safety of glass fiber in battery separators.

R. Bender and R. Versen  
*Schuller Int., Toledo, OH, USA.*  
 Proceedings of the Tenth Annual Battery Conf. on Appl. and Adv., 10-13 Jan. 1995, Long Beach, CA, 247-51, USA.

A50.  
 A study of relationship between separator and compression in VRLA batteries.

K. Nakamura, M. Shiomi, K. Takahashi and M. Tsubota  
*Japan Storage Battery K.K., Kyoto, Japan.*  
*GS News Tech. Rep.*, 54 (1995) 31-6.  
 CA: 124(14) 180985k.

## 2. B. Lead and lead alloys (including battery recycling)

B222.  
 Low-antimony lead alloy and its application.  
 B. Dong, Q. Zhang and I. Mu  
*Harbin Inst. Technol., Harbin 15001, Peop. Rep. China.*  
*Caifiao Kexue Yu Gongyi*, 3 (1995) 67-71.  
 CA: 123(6) 61259w.

B223.  
 Hardening process in ternary lead-antimony-tin alloys for battery grids.  
 J.P. Hilger  
*Laboratoire de Thermodynamique Métallurgique CNRS  
 ER 878, Université Henri Poincaré, Nancy I, BP 239, 54506  
 Vandoeuvre-les-Nancy, France.*

*J. Power Sources*, 53 (1995) 45-51.  
 CA: 122(2) 24401t.

B224.  
 Performances of lead-antimony-rare earth metal alloys for battery electrode grids.

L. Yang, L. Liu, Y. Pan and H. Ai  
*Dept. Applied Chemistry, Tianjin University, Tianjin  
 300072, Peop. Rep. China.*  
*Dianyuan Jishu*, 19 (1995) 15-18.  
 CA: 124(4) 33622m.

B225.  
 Present and future of antimony resources.  
 Y. Nimura

*Nippon Seiko K.K., Hyogo 667-11, Japan.*  
*Enerugi, Shigen*, 16 (1995) 328-33.  
 CA: 123(6) 60494g.

B226.  
 Production of a lead-calcium alloy and manufacture of battery parts from it.  
 L.D. Khogai, A.I. Rusin, V.A. Lata, S.A. Tei'vaev and A.M. Ustimov  
*Inst. Metall. Obogashchen, Russia.*  
*Kompleksn. Isopl'z. Miner. Syr'ya*, 5 (1994) 66-8.  
 CA: 123(2) 14952g.

B227.  
 Wrought lead-calcium-tin alloys for tubular lead/acid battery grids.  
 R.D. Prengaman  
*Research and Development, RSR Corporation, 1111 W.  
 Mockingbird Lane, Dallas, TX 75247, USA.*  
*J. Power Sources*, 53 (1995) 207-14.  
 CA: 122(20) 244057c.

B228.  
 Transmission electron microscopic observation of precipitates in an aged Pb-0.1 wt.%Ca-0.3wt.%Sn alloy.  
 I. Muras, P.R. Munroe, S. Blairs, P. Krauklis, Z.W. Chen and J.B. See  
*Bradken Consolidated Ltd., PO Box 105, Waratah, NSW  
 2298, Australia.*  
*J. Power Sources*, 55 (1995) 119-22.  
 CA: 123(4) 37178y.

B229.  
 Surface analysis of commercial lead/acid battery grids.  
 R. De Marco and J. Liesegang  
*Dept. Physical Sciences, Univ. Tasmania, PO Box 1214,  
 Launceston, Tasmania 7250, Australia.*  
*Appl. Surf. Sci.*, 84 (1995) 237-44.  
 CA: 122(14) 165450x.

B230.  
 The effect of gravity on the directional solidification of Pb-20 wt.% Cu alloy.  
 K. Shinwoo  
*Dept. Mater. Sci. and Eng., Hoseo Univ., Chungnam,  
 South Korea.*  
*J. Korean Inst. of Metals and Mater.*, 33 (1995) 166-70.

B231.  
 Advances in the refining and alloying of low-bismuth lead.  
 S.G. Hibbins, B. Closset and M. Bray  
*Timminco Metals, Haley Station, Haley, ON KOJ 1Y0,  
 Canada.*  
*J. Power Sources*, 53 (1995) 75-83.  
 CA: 123(2) 13623p.

- B232.**  
Influence of bismuth on the age-hardening and corrosion behaviour of low-antimony lead alloys in lead/acid battery systems.  
L.T. Lam, T.D. Huynh, N.P. Haigh, J.D. Douglas, D.A.J. Rand, C.S. Lakshmi, P.A. Hollingsworth, J.B. See, J. Manders and D.M. Rice  
*CSIRO, Division of Minerals, PO Box 124, Port Melbourne, Vic. 3207, Australia.*  
J. Power Sources, 53 (1995) 63-74.  
CA: 122(2) 24403v.
- B233.**  
Electrochemical preparation of PbO films.  
I. Zhitomirsky, L. Gal-Or, A. Kohn and H.W. Hennicke  
*Israel Inst. Metals, Technion-Israel, Inst. of Technol., Haifa, Israel.*  
J. Mater. Science Letters, 14 (1995) 807-10.  
INSPEC: A9515-8115L-007.
- B234.**  
Characterization of anodic films on lead and lead alloys by impedance spectroscopy.  
S. Brinic, M. Metikos-Hukovic and R. Babic  
*Fac. Technol., Split Univ., Croatia.*  
J. Power Sources, 55 (1995) 19-24.  
CA: 123(4) 37163q.
- B235.**  
Corrosion protection of battery terminals.  
C. Rajagopal, V. Subramanian, V. Ramakrishnan, P. Lakshmanan and K. Dakshinamurthi  
*Central Electrochem. Res. Inst., CSIR, Madras 600013, India.*  
Bull. Electrochem., 11 (1995) 129-32.  
CA: 122(24) 295272b.
- B236.**  
Corrosion of lead and lead alloys: influence of the active mass and of the polarization conditions.  
J. Garche  
*Centre für Solar Energy and Hydrogen Res. Baden-Württemberg, Ulm, Germany.*  
J. Power Sources, 53 (1995) 85-92.
- B237.**  
Formation of lead sulfate in the Pb/PbSO<sub>4</sub>/H<sub>2</sub>SO<sub>4</sub>/PbO<sub>2</sub>/Pb system and its electrochemical properties during use of a lead electrode.  
A. Molchadskii, R. Jankauskiene, R. Juskenas and A. Sudavicius  
*Inst. Chem., Vilnius, Lithuania.*  
Zh. Prikl. Khim. (St. Petersburg), 68 (1995) 247-53.  
CA: 123(16) 204304v.
- B238.**  
Lead sulfate formation in the Pb/PbSO<sub>4</sub>/H<sub>2</sub>SO<sub>4</sub>/PbO<sub>2</sub>/Pb system and its electrochemical properties during use of a lead-antimony electrode.  
A. Molchadskii, R. Jankauskiene, R. Juskenas and A. Sudavicius  
*Inst. Chem., Vilnius, Lithuania.*  
Ah. Prikl. Khim. (St. Petersburg), 68 (1995) 254-9.  
CA: 123(18) 233279w.
- B239.**  
Growth of expanded antimonial lead alloy battery grids.  
N.-Y. Tang and E.M.L. Valerioté  
*Cominco Ltd., Product Technol. Centre, Mississauga, ON L5K 1B4, Canada.*  
J. Electrochem. Soc., 142 (1995) 2144-8.  
CA: 123(8) 88288s.
- B240.**  
Effect of ion implantation on the corrosion behaviour of lead and lead-antimony alloy.  
S.T. Zhang, F.P. Kong and R.H. Muller  
*Lawrence Berkeley Lab., Univ. California, Berkeley, CA 94720, USA.*  
J. Electrochem. Soc., 141 (1994) 2677-81.  
CA: 121(22) 259576z.
- B241.**  
Passivation and corrosion phenomena on lead-calcium-tin alloys of lead/acid battery positive electrodes.  
R. Miraglio, L. Albert, A. El Ghachcham, J. Steinmetz and J.P. Hilger  
*CEAC, 18 quai de Clichy, BP 306, Clichy 92111, France.*  
J. Power Sources, 53 (1995) 53-61.  
CA: 122(20) 244042u.
- B242.**  
The influence of calcium, tin and grid thickness on corrosion-induced grid growth.  
H. Giess  
*Accumulatoren Fabrik Oerlikon, Zurich 8050, Switzerland.*  
J. Power Sources, 53 (1995) 31-43.  
CA: 122(20) 244040s.
- B243.**  
Corrosion of Pb-Ca-Sn alloys in sulfuric acid solution.  
N. Nii, R. Tatsumi, T. Sugie and H. Tsubano  
*Eng. Coll., Himeji Inst. Technol., Japan.*  
Fushoku Boshoku Burmon Iinkai Shiryo (Nippon Zairyo Gakkai), 185 (1995) 53-8.  
CA: 123(12) 150227b.
- B244.**  
Characterization by electrochemical impedance spectroscopy of passive layers formed on lead-tin alloys, in tetraborate and sulfuric acid solutions.

- P. Simon, N. Bui, N. Pebere, F. Dabosi and L. Albert  
*Lab. des Mater., Ecole Nat. Supérieure de Chimie, Toulouse, France.*  
J. Power Sources, 55 (1995) 63-71.  
CA: 123(4) 37169w.
- B245.**  
In situ redox conductivity, XPS and impedance spectroscopy studies of passive layers formed in lead-tin alloys.  
P. Simon, N. Bui, N. Pebere and F. Dabosi  
*Ecole Nationale Supérieure de Chimie de Toulouse, Equipe de Metallurgie Physique, Laboratoire de Matériaux URA-CNRS 445, 118 Route de Narbonne, Toulouse 31077, France.*  
J. Power Sources, 53 (1995) 163-73.  
CA: 122(2) 244054z.
- B246.**  
The effect of selenium on the electrochemical behaviour and corrosion of Pb-Sn alloys used in lead-acid batteries.  
D. Pavlov, M. Dimitrov, G. Petkova, H. Giess and C. Gnehm  
*Cent. Lab. Electrochem. Power Sources, Bulg. Acad. Sci., Sofia 1113, Bulgaria.*  
J. Electrochem. Soc., 142 (1995) 2919-27.  
CA: 123(18) 233289z.
- B247.**  
Role of minor alloying elements on the performance of lead-acid battery grids. Part I. Corrosion of Pb-Se alloys.  
A.G. Gad-Allah, H.A.A. El-Rahman and M.A. El-Galil  
*Dept. Chem., Fac. Sci., Cairo Univ., Giza, Egypt.*  
J. Appl. Electrochem., 25 (1995) 682-9.  
CA: 123(16) 211203q.
- B248.**  
Anodic corrosion behaviour of lead-strontium alloys in sulfuric acid solution.  
H. Liu, F. Wang, P. Xu and W. Zhou  
*Dept. Chem., Fudan Univ., Shanghai, Peop. Rep. China.*  
Fudan Xuebao, Ziran Kexueban, 34 (1995) 25-31.  
CA: 123(14) 181724r.
- B249.**  
Effective recycling of lead materials.  
V.A. Lata, A.I. Rusin, and L.D. Khagai  
*Inst. Metall. Obogashchen., Kazakhstan.*  
Kompleksn. Isopl'z. Miner. Syr'ya, 3 (1994) 48-52.  
CA: 123(12) 149375s.
- B250.**  
Antimony behaviour in desulfation of the active material of lead-battery scrap.  
A.G. Morachevsky, O.A. Kal'ko and Z.I. Vaysgant  
*St. Petersburg Gos. Tekh. Univ., Russia.*  
Zh. Prikl. Khim. (St. Petersburg), 68 (1995) 127-8.  
CA: 123(12) 14940a.
- B251.**  
Removal and recovery of Pb from battery breaking sites.  
K.E. Forrester  
*Forrester Environmental Services, Inc., Stratham, NH 03885, USA.*  
Treat. Minimization Heavy Met.-Containing Wastes, Proc. Int. Symp., (1995) 245-8.  
CA: 123(2) 14184h.
- B252.**  
A low-temperature technique for recycling lead/acid battery scrap without wastes and with improved environmental control.  
Z. Vaysgant, A. Morachevsky, A. Demidov and E. Klebanov  
*ELTA, 10 Dalia Street, St. Petersburg, Russia.*  
J. Power Sources, 53 (1995) 303-6.  
CA: 122(24) 295735e.
- B253.**  
Recovering lead from batteries.  
R.D. Prengaman  
*Carnegie Mellon Univ., Pittsburg, PA 15213, USA.*  
JOM, 47 (1995) 31-3.  
CA: 122(16) 193016d.
- B254.**  
Recovery of lead and antimony from spent batteries.  
B. Zhao  
*Beijing General Res. Inst. Mining and Metallurgy, Beijing 100044, Peop. Rep. China.*  
Youse Jinshu, Yelian Bufen, 4 (1995) 15-7.  
CA: 124(8) 93260b.
- B255.**  
New source performance standards and emission guidelines for municipal waste combustors; combustion of lead-acid vehicle batteries.  
United States Environmental Protection Agency  
*Washington, DC 20460, USA.*  
Fed. Regist., 60 (1995) 65438-41.  
CA: 124(10) 125388t.
- B256.**  
Modification of reverberatory furnace for treatment of lead-acid battery scrap.  
S. Wang  
*Guangzhou Nonferrous Metals Smelter, Canton 510290, Peop. Rep. China.*  
Youse Jinshu, Yelian Bufen, 5 (1995) 18-19.  
CA: 124(10) 122665v.
- B257.**  
Collection of spent batteries in Rome.

- A. Muzi**  
*Azienda Municipale Ambiente, Rome Municipal-ity, Rome, Italy.*  
*J. Power Sources*, 57 (1995) 19-21.  
 CA: 124(12) 154807j.
- B258.**  
 Collection and recycling spent lead/acid batteries in Italy.  
**C. Sancilio**  
*COBAT, via Toscana 1, Rome 00187, Italy.*  
*J. Power Sources*, 57 (1995) 75-80.  
 CA: 124(12) 151510w.
- B259.**  
 Recycling of lead/acid batteries in a small plant.  
**J.-L. Bourson**  
*B.J. Industries, Zone Industrielle, Tournes 08090, France.*  
*J. Power Sources*, 57 (1995) 81-3.  
 CA: 124(12) 150816p.
- B260.**  
 Use of scrap lead from storage batteries for recovery of precious metals.  
**T.J.R. Parga and G.H. Mercado**  
*Dept. Metal-Mecanica, Instituto Tecnológico Saltillo, Mexico.*  
*Congr. Anu.-Assoc. Bras. Metal. Mater.*, 49 (1995) 493-505.  
 CA: 124(14) 181599z.
- B261.**  
 Viscosity of melts in electric-furnace melting of lead-containing wastes.  
**V.A. Lata and S.O. Alekseev**  
*Inst. Metall. Obogashchen, Kazakhstan.*  
*Kompleksn. Isop'l'z. Miner. Syr'ya*, 3 (1994) 49-54.  
 CA: 123(6) 61952s.
- B262.**  
 Electrowinning of lead from spent batteries. Part 2. Technological evolution of anodic materials in fluoro-complex baths.  
**A. Nidola**  
*De Nora Permelec S.p.A., Italy.*  
*AIFM Galvanotec. Nuove Finiture*, 4 (1994) 157-75.  
 CA: 123(14) 175392q.
- B263.**  
 Recycling system of used lead/acid batteries.  
**T. Kurikami**  
*Toho Aen K.K., Japan.*  
*GS News Tech. Rep.*, 53 (1994) 1-4.  
 CA: 122(20) 24743e.
- B264.**  
 Electric vehicle batteries and the environment: assessing recycling and waste management.  
**N.L.C. Steele**  
*Univ. California, Los Angeles, CA, USA.*  
*Dissertation 1995, Diss. Abstr. Int.*, B, 1995, 56(4), 1919.  
 CA: 123(26) 343270r.
- B265.**  
 Development and use of a new system for environmentally clean recycling of lead battery scrap.  
**J. Kéri and J. Precskó**  
*Perion Battery Factory, Co. Ltd, Budapest 1138, Hungary.*  
*J. Power Sources*, 53 (1995) 297-302.  
 CA: 122(20) 244068g.
- B266.**  
 Recycling electric vehicle batteries in California.  
**N.L.C. Steele**  
*California Environmental Protection Agency, Glendale, CA, USA.*  
*Conf. Proc.: The 10th Annual Battery Conf. Appl. Adv.*, 10-13 Jan. 1995, Long Beach, CA, USA, pp. 101-6.  
 CA: 122(16) 192311j.
- 3. C. Positive plates (lead(IV) oxides)**
- C160.**  
 Discharge behaviour of electro-deposited lead and lead dioxide electrodes on carbon in aqueous sulfuric acid.  
**K. Das and A. Mondal**  
*Dept. Chem., Jadaupur Univ., Calcutta 700032, India.*  
*J. Power Sources*, 55 (1995) 251-4.  
 CA: 123(8) 88281j.
- C161.**  
 Rotating ring-disk electrode study of the PbSO<sub>4</sub>/PbO<sub>2</sub> transformation process.  
**G. Wei and J. Wang**  
*Dept. Chem., Shanghai Univ., Shanghai 201800, Peop. Rep. China.*  
*Dianchi*, 25 (1995) 114-17.  
 CA: 123(14) 174900s.
- C162.**  
 Improvement of the performance of the positive electrode in the lead/acid battery by addition of boric acid.  
**W.A. Badawy and S.S. El-Egamy**  
*Dept. Chem., Cairo Univ., Giza, Egypt.*  
*J. Power Sources*, 55 (1995) 11-17.  
 CA: 123(4) 37162p.
- C163.**  
 Effects of additives on the discharge behaviour of positive electrodes in lead/acid batteries.

S. Wang, B. Xia, G. Yin and P. Shi  
*Dept. Appl. Chem., Harbin Inst. of Technol., Harbin*  
 15001, *Peop. Rep. China.*

*J. Power Sources*, 55 (1995) 47-52.

CA: 123(4) 37167u.

C164.

Study of additives for tubular positives in lead-acid battery.

Y. Zhao, M. Zhang and Z. Zheng

*Zibo Storage Battery Factory, CSSC, Zibo 255056, Peop. Rep. China.*

*Dianyuan Jishu*, 19 (1995) 18-21.

CA: 124(10) 121982j.

C165.

Paste structure and its influence on the agglomerate-of-spheres parameters of the PbO<sub>2</sub> electrode.

E. Bashtavelova and A. Winsel

*Universität Gesamthochschule Kassel, Heinrich-Plett-Strasse, Kassel 34132, Germany.*

*J. Power Sources*, 53 (1995) 175-83.

CA: 122(20) 244055a.

C166.

Relation between energetic and utilisation coefficients in the positive plates of automotive lead/acid batteries.

C.V. D'Alkaine, A. Carubelli, H.W. Fava and A.C. Sanhuez

*Grupo de Electroquímica e Polimeros-DQ-UFSCar, PO Box 676, Sao Carlos 13565-905, SP, Brazil.*

*J. Power Sources*, 53 (1995) 289-92.

CA: 122(20) 244066e.

C167.

Hydrothermal solidification of  $\beta$ -PbO<sub>2</sub> and lead powder.

N. Yamasaki and Hao-Rei

*Research Lab. Hydrothermal Chem., Kochi Univ., Kochi-shi 780, Japan.*

*J. Mater. Sci.*, 30 (1995) 1516-20.

CA: 122(20) 244038x.

C168.

Preparation of micro-hole-pasted electrode of lead dioxide.

S. Zhang, S. Wang, B. Xia and P. Shi

*Harbin Inst. Technology, Heilongjiang 150001, Peop. Rep. China.*

*Dianchi*, 25 (1995) 71-2.

CA: 123(14) 174893s.

C169.

Physical change in positive-plate material an underrated contributor to premature capacity loss.

K.K. Constanti, A.F. Hollenkamp, M.J. Koop and K. McGregor

*CSIRO, Division of Minerals, PO Box 124, Port Melbourne, Vic. 3207, Australia.*

*J. Power Sources*, 55 (1995) 269-75.

CA: 123(8) 88284n.

#### 4. D. Negative plates

D55.

Structural analysis of the negative plate of lead-acid battery.

P.G. Balakrishnan, V.S. Muralidharan and G. Singh

*Cent. Electrochem. Res. Inst., Karaikudi 623006, India.*

*Bull. Electrochem.*, 10 (1994) 268-76.

CA: 123(12) 148939s.

D56.

Influence of substituted benzaldehydes and their derivatives as inhibitors for hydrogen evolution in lead/acid batteries.

H. Dietz, G. Hoogestraat, S. Laibach, D. von Borstel and K. Wiesener

*Technische Univ. Dresden, Inst. für Physicalische Chemie und Elektrochemie, Mommenstrasse 13, Dresden D-01162, Germany.*

*J. Power Sources*, 53 (1995) 359-65.

CA: 122(20) 244075g.

D57.

Oxygen absorption by the negative electrode in a lead/acid battery.

S. Wang, B. Xia, G. Yin and J. Xie

*Dept. Applied Chemistry, Harbin Inst. Technol. Harbin 15001, Peop. Rep. China.*

*Dianchi*, 25 (1995) 212-14.

CA: 124(8) 92488v.

#### 5. E. Aspects of manufacture

E189.

Advances in manufacturing systems for the production of pastes for lead/acid battery plates.

W.R. Kitchens, R.C. Osten and D.W.H. Lambert  
*OXMASTER Div. Wirtz Mfg. Co. Inc., 608 Riverside Parkway SW, Austell, GA 30001, USA.*

*J. Power Sources*, 53 (1995) 263-7.

CA: 122(20) 244063b.

E190.

Vacuum- and air-cooled mixing of lead/acid battery paste: a comparison of the production results.

H.-J. Vogel

*Maschinenfabrik Gustav Eirich, Postfach 1160, Hardheim D-7732, Germany.*

*J. Power Sources*, 53 (1995) 269-71.

CA: 122(20) 255064c.

- E191.  
Plate curing process of Barton lead oxide.  
H. Wu  
*Chongqing Wanli Storage Battery Co., Ltd., Sichuang*  
630054, *Peop. Rep. China.*  
Dianchi, 25 (1995) 228-9.  
CA: 124 (8) 92491r.
- E192.  
Some structural and textural aspects of tribasic lead sulfate precipitation during the mixing of lead-acid battery positive paste.  
F. Vallat-Joliveau, A. Delahaye-Vidal, M. Figlarz and A. de Guibert  
*Laboratoire Reactivite Chimie des Solides, Universite Picardie Jules Verne, Amiens 80039, France.*  
J. Electrochem. Soc., 142 (1995) 2710-16.  
CA: 123 (12) 148932j.
- E193.  
New preparation methods and accurate X-ray powder diffraction data for tribasic lead sulfate hydrate, precursor of the active material in lead/acid batteries.  
F. Vallat-Joliveau, A. Delahaye-Vidal, M. Figlarz and A. de Guibert  
*Universite de Picardie Jules Verne, Lab. de Radioactive et de Chimie des Solides, URA CNRS 1211, 33 rue St. Leu, Amiens 80039, France.*  
J. Power Sources, 55 (1995) 97-100.  
CA: 123 (4) 37173t.
- E194.  
The electroformation of lead-acid battery electrodes by current impulses.  
C.D. Mateescu, C. Sarbu and A. Mateescu  
*Inst. Phys. and Mater. Technol., Bucharest, Rumania.*  
Rev. Roum. Chim., 40 (1995) 423-34.  
CA: 123 (26) 345643s.
- E195.  
Research on lead battery additives.  
F. Chen  
*Dept. Chem. Eng., Shanghai Univ. Engineering and Technology, Shanghai 200335, Peop. Rep. China.*  
Shanghai Huagong, 20 (1995) 40-2.  
CA: 124 (12) 150788f.
- E196.  
Soil-related lead poisoning in Socorro, New Mexico. Final report.  
New Mexico Health and Environment Department  
*Santa Fe, NM, USA.*  
Report, Order No. PB94-193406, 1994, 138 pp.  
Gov. Rep. Announce Index (US) 1994, 94 (24), Abstr. No. 469,753.  
CA: 123 (16) 207374d.
- E197.  
Effect of lead/acid battery and cadmium spiking on incinerator emissions.  
A.J. Chandler, H.G. Rigo and S.E. Sawell  
*A.J. Chandler and Associates Ltd., Willowdale, ON, Canada.*  
Proc. Annual Meet. - Air Waste Manage. Assoc. 87 (1994) 20 pp.  
CA: 123 (24) 321240g.
- E198.  
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