LEAD ACID

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LEAD ACID BATTERY

Sasaki Masaaki; Horii Tohru; Arakawa Masahiro; Murata Kazuo Takatsuki, Japan assigned to Yuasa Corporation

A battery of this invention is equipped with a positive electrode having the following structure. A resin sheet is bonded to one side or both sides of a metal sheet, a large number of through holes are made at least on the resin sheet, and an active material is filled in the through holes.

5507842

PROCESS FOR CONVERTING LEAD AND LEAD OXIDES TO BARIUM METAPLUMBATE

Fiorino Mary E Bridgewater, NJ, UNITED STATES assigned to AT&T Corporation

The present invention provides improved processes for forming anti-corrosion layers, particularly barium metaplumbate, on lead, lead alloy-, and lead oxide-containing substrates. The processes of the invention are used to form corrosion-resistant current collectors which are assembled into lead-acid batteries. The inventive methods used to form barium metaplumbate employ a salt solution which includes a barium compound and a solvent salt. In a first embodiment, a substrate material having at least a surface comprising elemental lead reacts with a salt solution to form barium metaplumbate. The salt solution includes a barium compound and an oxidizing agent. The solvent salt or barium compound may themselves be oxidizing agents, or an additional oxidant may be added to the solution. The molten salt solution is applied to the substrate in any known manner such as dipping, spraying, and brushing. Advantageously, a lead or lead alloy-containing substrate is dipped into a molten salt solution heated to a temperature at which a portion of the lead-containing substrate is directly converted to barium metaplumbate. In a further embodiment of the invention, barium metaplumbate is formed on a lead oxide-containing substrate. This process employs a salt solution comprising a barium compound and a solvent salt to convert lead oxide to barium metaplumbate.

5508125

BATTERY STRAPS MADE OF A LEAD-BASED ALLOY CONTAINING ANTIMONY, ARSENIC, TIN AND SELENIUM

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A cast strap for a lead-acid battery is made of a lead-based alloy consisting essentially of from about 2.5 to 3.5 wt. % antimony, about 0.01 to 0.5 wt. % arsenic, about 0.01 to 0.5 wt. % tin, about 0.008 to 0.1 wt. % selenium, and the balance lead. The content of at least one of arsenic, tin and selenium is within the following ranges: about 0.075 to 0.5 wt. % tin, about 0.1 to 0.5 wt. % arsenic, about 0.021 to 0.03 wt. % selenium. For lead-based alloys containing antimony, arsenic, tin and selenium, increased additions of antimony, arsenic, and selenium generally have a favorable effect on long term corrosion resistance of battery straps in a lead-acid battery environment, whereas tin has an unfavorable effect such that increased amounts of tin dramatically lower high temperature corrosion resistance. The unfavorable effects of tine on corrosion resistance are moderated by adjustment of the levels of the other three elements, particularly arsenic, which can provide a predictable level of increase in corrosion resistance for a given arsenic content. A family of alloys highly suitable for use as cast-on battery straps and intercell connectors has been developed based upon these relationships.