

Comb polymer expander for lead acid batteries

Disclosure Number

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Technology Summary

In this invention, polyelectrolyte-based copolymers with comb-like molecular architecture are disclosed for use as expanders for lead-acid battery paste. Such additions control the growth (location, size, and morphology) of the inactive phase (lead sulfate) that forms during electrochemical charge-discharge cycling. In the absence of expanders, uninhibited growth of the inactive phase occurs, resulting in a large effective volume change of the paste. This volume change promotes shedding of the paste from the underlying electrode material (i.e., loss of electrical connectivity), which results in reduced battery cycle life and overall performance.

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