

## **Effect of the Addition of Additives on the Improvement of the Performances of Lead-Acid Batteries**

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**Abstract :** The objective of this work is to improve the electrical proprieties of lead-acid battery with the addition of additives in electrolyte and in the cured plates before oxidation. The results showed that the addition of surfactant in sulfuric acid and 3% mineral additive in the cured plates change the morphology and the crystallite size of PAM after oxidation. The discharge capacity increases with the decrease of the crystallite size and the resistance of the active mass. This shows that the addition of mineral additive and the surfactant additive to the PAM, the electrical performance and the cycle life of lead- acid battery are significantly increases.

**Keywords :** lead-acid battery, additives, positive plate, impedance (EIS).

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