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The role of sodium sulfate in lead-acid batteries

Does sodium sulphate influence the electrochemical characteristics of lead acid battery?

Abstract: The sodium sulphate in the electrolyte and its influence on the electrochemical characteristics such as capacity,reserve capacity,cold cranking ampere,high rate discharge and charge acceptanceof the lead acid battery have been investigated.

What is sulfation in lead acid batteries?

Sulfation is a condition that occurs when a lead acid battery is deprived of a full charge. If not corrected,sulfation can damage the batteryand shorten the battery life. This article addresses the topic of sulfation with lead acid batteries and is meant to inform. If sulfation is a concern,please be sure to work with a trained professional to rectify this issue.

How does sodium sulphate affect redox reaction in lead acid battery?

The sodium sulphate in the aqueous sulphuric acid electrolyte acts as buffer solution and also expected to improve the reversibilityof redox reaction in the lead acid battery. Further,the density of the electrolyte changes with Na2SO4concentration in the electrolyte and the same is depicted in Fig.2.

Why are sulphate salts added to battery electrolyte?

Presence of sulphate salts to the battery electrolyte to reduce the solubility of lead sulphatereduces the number of failures from shorting when the battery is deeply discharged or stored with minimal electrolyte. [14-17].

What happens when a battery is sulfated?

Sulfation is a process that can cause an interruption to optimized stored energy in a lead acid battery when it is deprived of a full charge. If not corrected,sulfation can damage the batteryand shorten the battery life. The battery bank is a vital part of the system configuration.

How much sulphuric acid is in a battery?

It is usual that battery manufacturers maintain a maximum of 1.28relative density of sulphuric acid for fully charged battery. Keeping this in mind and in view of the fact that the addition of sodium sulphate increases the relative density of the sulphuric acid,

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The results achieved will be valuable to improve the cycle life and maintenance-free properties of lead-acid batteries. Sodium sulfate as an electrolyte additive was studied via ...

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To obtain valve-regulated lead-acid(VRLA) batteries with a long deep-discharge cycle life, it is desirable to improve the performance of lead-acid batteries by taking effective measures, such ...

Sodium sulfate is widely used as efficient additive for negative paste of lead-acid batteries for more than 100 years. It is well known that the performance of the negative plates of lead-acid ...

Sodium sulfate improves capacity, cold cranking ability and cycle life of the lead-acid batteries. Several practical production examples are carried out about prepared paste ...

The nature of positive and negative plates of a lead acid battery is synonymous to how the battery performs electrically which go through different changes. Adding sulphate salts to the ...

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