

WATER QUALITY

Water Quality and it's long term effects on Lead Acid Batteries

Adding water to lead acid batteries on a 'as required' schedule is critical to the battery's performance and longevity.

Lead-Acid type batteries used in 'motive' applications such as golf-carts, forklifts and other vehicle types require maintenance on a weekly basis. Watering intervals are dependent on the depth of discharge, the number of discharges each day and operating temperatures.

Lead-Acid batteries experience reduced life and performance when operated at temperatures above 90F or 35C. The optimum lead-acid operating temperature is 72-80F.

Battery operating temperatures are greatly increased when charging. Lead acid batteries used in high-cycle operations (multiple charges per day) are most susceptible to damaging temperatures.

Fleet operators have adopted 'opportunity and fast' charging technologies that require less floor space, battery handling equipment and the labor costs associated with conventional charging techniques.

The performance and life of lead acid batteries in these applications is reduced. Multiple discharges and charges each day can result in battery temperatures that are highly elevated.

The battery's electrolyte levels and the contaminants found in the acid solution become a major factor affecting battery life in these applications. Batteries charged at high rates, multiple times per day with contaminated electrolyte can provide as little as 24 months useable service life.

Aluminum, Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Mercury, Selenium, Silver, Uranium are normally found in most tap water. Most damaging to lead acid batteries is iron, the presence of other metal compounds its negative effect.

The introduction of these contaminants to the pure water/acid solution significantly effects the electro-chemical reaction of the battery. The result is an increase in internal cell resistance causing elevated operating temperatures and pre-mature de-gradation of the battery's plates.

Using only distilled water is recommended, using water from other sources should be tested to ensure contaminants are not present.