unigy

TECHNICAL BULLETIN

EAST PENN manufacturing co., inc. ‣ Lyon Station, PA 19536 ‣ Phone: 610-682-6361

November 13, 2009
Rev. 0

Intermittent Charging Techniques and Unigy Battery Product Line

Currently, East Penn does not have laboratory test data to determine if the methodology of intermittent charging on batteries under the Unigy Product Line is beneficial, damaging, or insignificant to the life of the product.

If data exists that shows a benefit to battery life, East Penn would appreciate the opportunity to review and comment. East Penn Engineering is in the process of developing a test plan to evaluate the claimed advantages of intermittent charging with batteries within the Unigy Product Line.

Intermittent charging techniques allow the battery to sit on open circuit for predetermined periods of time based on parameters determined by the charger algorithm. During these periods, the battery will self discharge causing the reserve capacity to decrease if a power outage occurs. This needs to be considered to ensure customers' runtime expectations are met.

There is concern that intermittent charging can lead to irreversible sulfation, undercharging, and corrosion based on Landers curve (Ref. Electrochemical Society 105, 289 (1958)). Although, higher recharge voltages may help to recover some of the sulfation, water loss might increase leading to premature dryout.

If monitoring equipment is used to trend ohmic values and/or battery voltages, intermittent charging can cause misleading results depending on the battery's state of charge at the time the data is collected.

Per our Product Support and Warranty Department, every battery warranty claim where intermittent charging was used, the batteries indicated abuse from undercharging in the form of lost capacity and sulfation.

Currently, East Penn's Unigy Product Line is designed and tested for constant float operation. Per our Installation and Operation Manual, the battery is to be charged at a constant float voltage. This ensures the battery is maintained at a full state of charge and reduces excessive grid corrosion/hydration due to undercharging and excessive gassing due to overcharging.

Because we currently lack data for this charging technique on the Unigy Product Line, we cannot endorse intermittent charging techniques at this time.