The Memory Effect

The 'memory effect' (loss of capacity) is due mainly to dendrite growth on the electrodes in Nickel based battery cells. Dendrites are stalagmite and stalactite like formations that mainly on the Nickel electrode.

The dendrite growth is a product of the chemical reaction that takes place during a charge/ discharge cycle and is the plating of dissolved Cadmium and other materials on the Nickel electrode. The plating reduces the amount of surface area available for energy transfer and if allowed to grow unchecked may even penetrate the separator causing catastrophic cell failure. Dendrite growth is exacerbated by excessive trickle charging.

Oxidisation is a by product of heat which is caused by the dendrite growth, excessive trickle charging and overcharging by rapid chargers. The heat causes ions in the cell to separate to their base components namely oxygen and hydrogen. The hydrogen escapes from the cell creating an oxygen rich environment. Oxygen is very corrosive particularly to the nickel electrode. When the surface of the nickel electrode is oxidized, the energy transfer capabilities are impeded, reducing both operational effectiveness and overall product life cycle.

The ACT system slows down the growth of dendrites to a point where they do not have any effect on battery performance. If dendrites already exist in a battery, the ACT charging process will remove the majority of dendrites within 12 charge cycles and slow their growth from that point on.

Oxidisation of the electrodes is virtually eliminated and any oxidization that has occurred can be reversed and the electrode surface recovered.

The ACT charging process also allows for batteries to be charged extremely quickly, typically 40 minutes for a 1500 mAh battery.

Call, fax or email enquires & orders to:
Phone +64 2 355 1054 or +64 3 326 3273
Fax +64 3 355 1056
Email
scott.heywood@logicenergy.co.nz
dave.hicks@logicenergy.co.nz

Logic Energy Ltd.
Ferrymead
PO Box 41065
Christchurch
New Zealand