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Calendar Life Studies on Lithium-Ion Pouch Cells

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The calendar life experimental studies done on the MSA Lithium ion pouch will be presented. The effects of temperature, the End of Charge Voltage (EOCV) were evaluated on stored Li ion cells for a period of two years. The nominal capacity of the pouch cell is 1.67Ah. The studies were performed at two different temperatures 5^0C and 35^0C with and without trickle charge and at two different voltages 4.2V and 4.0V. During the Capacity measurement tests, the cells were discharged at C/2 rate from their existing state of charge to 3.0V to measure their residual capacity. Next, the cells were charged back to 4.2 V at C/5 rate. A second discharge to 3.0V at the same rate was used to estimate the actual capacity of the cell.

Impedance experiments were done at 100% state of charge for all the cells during the capacity measurement tests. After the completion of the capacity measurement tests, all the cells were restored to their original test conditions. Fig. 1 shows variation of OCP of Li-Ion Pouch cells under storage at different experimental conditions.

The presentation will include the calendar life studies of Li-ion pouch cells stored at different operating conditions. Discussions on capacity loss during storage, aging and self-discharge mechanisms will also be presented.

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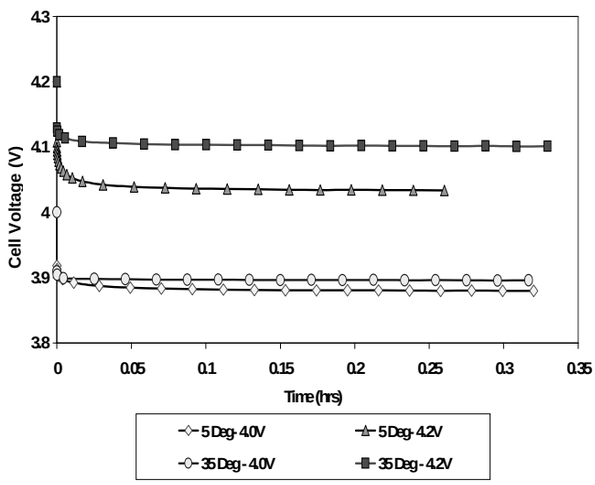

Fig. 1 Variation of OCP of Li-ion Pouch cells under storage at different operating conditions