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Technical News

Large Scale Investigation of Tadiran HLC (Hybrid Layer Capacitor) Storage Performance over 5 years

Back in 1998, the PulsesPlus™ battery was developed in Tadiran Batteries. This battery combines a primary bobbin type Li/SOCl₂ cell with a hybrid layer capacitor called HLC. The HLC is hermetically sealed battery like a capacitor, its electrodes consists of lithium intercalated compounds and has an organic type solvent mixture.

Due to the superior characteristics of the PulsesPlus™, it was offered as a power source, for many long lasting applications like energy meter, gas meters and water meters with communication capabilities (Smart Meters).

In most applications the PulsesPlus™ is supplied as one package, combining the primary cell with the proper size HLC, as shown in Figure 1.



Figure 1



Figure 2

However, in some other cases, the requirement is for combining the HLC and the primary cell through the PCB circuit, as shown on Figure 2.

In the second case, the HLC can sit on the customer shelf for a very long time until it is connected to the primary cell. The question which is always asked is “.....**how long the HLC be separated from the primary cell and still be OK for the application?**”

A recent study of about 27,000 HLC-1520 cells, stored at field room temperature conditions for **5 years**, has been tested for Open Circuit Voltage (OCV).

The results are shown in Figure 3.

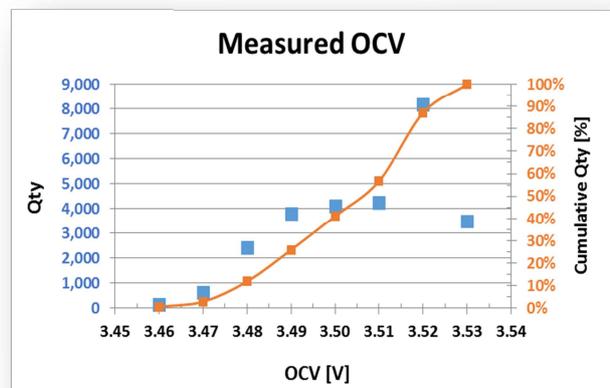


Figure 3

The results reflect that **at least** 60% of the capacity of the HLC cells remained in the cells after 5 years. This result indicates a very low self-discharge of the HLC of less than 0.4 μA.

Conclusion, the connection of the HLC to the primary cell/s to make the PulsesPlus™ battery packs, will have a minimal effect on the self discharge of the combined cells.

That is another field-proof of Tadiran's HLC's log life capabilities.

LEADING THE STANDARD FOR VERY LONG LIFE APPLICATIONS, TADIRAN'S PULSESPLUS™ BATTERIES SHOW VERY HIGH CAPACITY LEFT AFTER MANY YEARS OF STORAGE.