Quallion Medical Batteries Maintain High Performance After 10 Year Storage Test

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Quallion, a leading developer and manufacturer of advanced lithium ion batteries, released test data demonstrating the potential to power long-term implantable medical devices. After 10 years of storage at an elevated temperature simulating conditions inside the human body, Quallion's cells showed minimal degradation in terms of calendar fade and self discharge.

The test results released today are based on testing that began in 2003 with 15 fully charged (4.1V) 200mAh implantable lithium ion cells [1] placed in storage at a controlled temperature of 37 degrees Celsius. Quallion performed testing on 6 of the cells after 4 years and most recently tested another 2 cells after 10 years in storage. The most recent results show less than 7% calendar fade [2] (irreversible loss of storage capacity over time) and less than 18% self discharge (loss of stored energy which could be recovered by a subsequent charge cycle). The remaining 7 cells will stay in controlled storage for testing in future years.

Calendar fade and self discharge are unavoidable processes in a lithium ion cell that occur as the cell's anode and cathode materials degrade over time. These processes are exacerbated by elevated temperatures, such as the 37 degrees Celsius condition inside the human body, and by a high state of charge, as found in a fully charged cell. Quallion's test results confirm the long life of the cell even under these stressful conditions. Coupled with proprietary Zero-Volt™ [3] capability to withstand deep discharges and unrivaled cycle life, these data clearly demonstrate Quallion's lithium ion cell chemistry.

Quallion also reached a production milestone – producing its 100,000th implantable lithium ion 200mAh cell. Even after producing this large number of cells, Quallion's 200mAh cell has not suffered a safety event or recall. Used to power neurostimulation devices for pain management and other medical devices, Quallion's implantable lithium ion batteries have helped tens of thousands of patients lead healthier and more productive lives.

Quallion management congratulated the research and development team and the production and quality staff on these accomplishments. "Quallion set out a goal to design a lithium-ion battery that would last 25 years in a human body. This 10 year data provides the long-term validation testing towards this design objective," said Quallion's Senior Vice President Vincent Visco.

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