Thermal Battery Test System

Thermal batteries are primary reserve batteries that are solid state at normaltemperature. They have been the first choice of power supply for guided missilesand nuclear weapons. A typical battery contains a stack of cells, each with its ownanode, cathode, electrolyte and heat pellet. The working temperature of between 500 and 700 deg C is achieved by burning the electrically fired pellets of gas-less thermite. Activation takes between 0.2 second and a few seconds, depending onthe size of the stack, and is initiated by an "electric match", or by a percussiveprimer, and a fuse train connected to all of the heat pellets.Once activated, the internal temperature depends on the balance between the heat loss through the insulation and the internal power losses. Active life ceases due toeither exhaustion of the active materials or because the temperature falls too low.
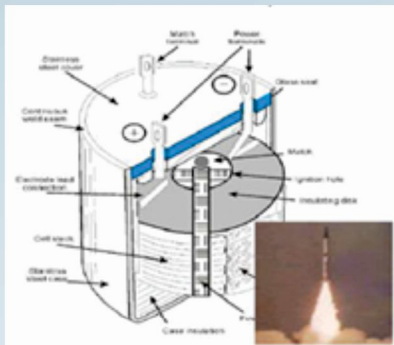
Thermal battery testing is a destructive test and is performed on defined no of samples for a batch on the production line . Random testing may also be done at storage and deployment locations. The battery is ignited using a short current pulse and the voltage generated is recorded by a data logger from ignition time tothe useful life of the battery . The load , activation and useful life are defined by battery specification.

Software features

The Interface unit and data logger are controlled by a computer. This reduces the probability of human error and speeds measurement. The DUT details are logged at the time of measurement. The data is stored in a database for reference and analysis.

Thermal Battery Test & Measurement Setup
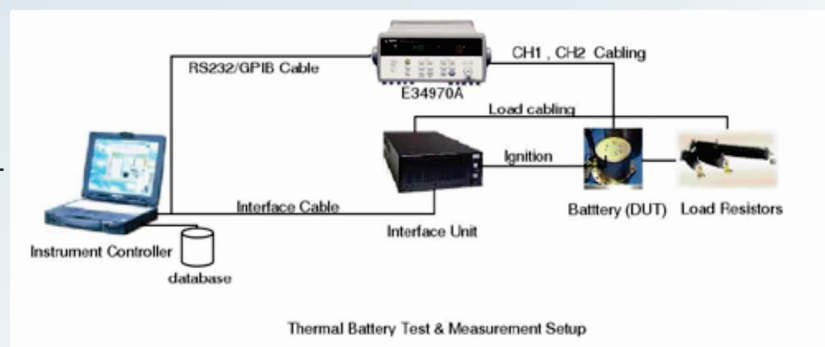
- ⮫ Instrument setting ,calibration , storage and retrieval
- ⮫ Configurable test sequences
- ⮫ On screen display with Zoom and marker features
- ⮫ Activation time and useful life computation
- ⮫ Data export to Excel format for further analysis
- ⮫ Reports in portable document format (PDF)

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