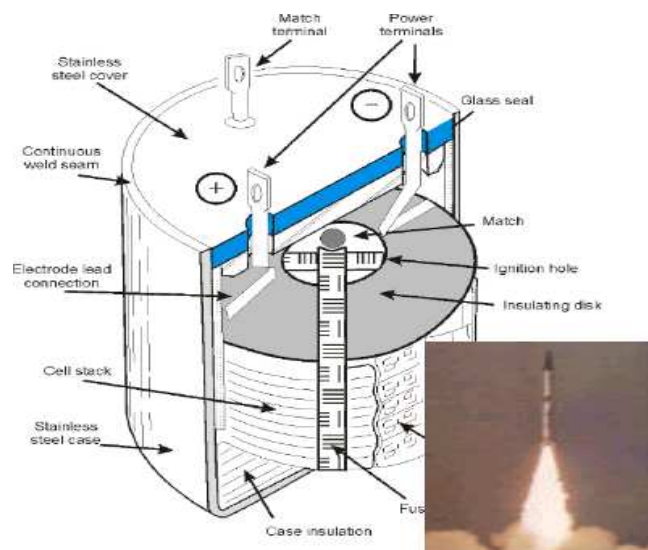


Thermal Battery Test System

Thermal batteries are primary reserve batteries that are solid state at normal temperature. They have been the first choice of power supply for guided missiles and nuclear weapons. A typical battery contains a stack of cells, each with its own anode, 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 on the size of the stack, and is initiated by an "electric match", or by a percussive primer, and a fuse train connected to all of the heat pellets.

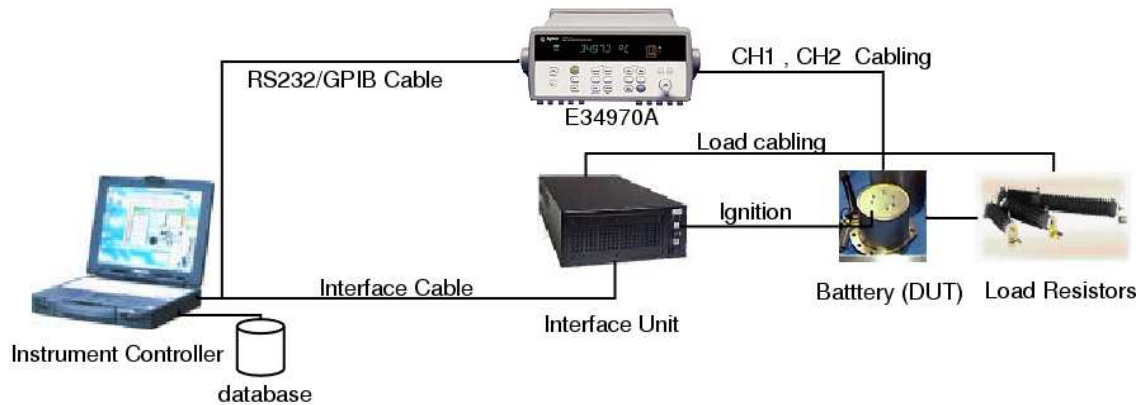


Once activated, the internal temperature depends on the balance between the heat loss through the insulation and the internal power losses. Active life ceases due to either exhaustion of the active materials or because the temperature falls too low.

Thermal Battery testing

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 to the useful life of the battery . The load , activation and useful life are defined by battery specification.

Test setup



Thermal Battery Test & Measurement Setup

Software features

The Interface unit and datalogger 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.

1. Instrument setting ,calibration , storage and retrieval
2. Configurable test sequences
3. On screen display with Zoom and marker features
4. Activation time and useful life computation
5. Data export to Excel format for further analysis
6. Reports in portable document format (PDF)

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