WESTPAK, INC.

Environmental Testing

WHAT IS ENVIRONMENTAL TESTING?

Product Environmental Testing refers to the process by which a product is stressed mechanically, thermally, or otherwise in a manner designed to simulate those inputs which are likely to occur in the end-use or distribution environment. Products are tested in both operational and non-operational modes.

The purpose of product environmental testing

- To uncover design or material weaknesses within the product
- To help determine the product life expectancy or MTBF (Mean Time Between Failures)
- To determine compliance with company, customer, or government specifications
- To qualify new vendors for components or subassemblies
- To provide product quality and safety liability data

Temperature Extremes

Depending on the end-use or distribution environment, a product will see a variety of temperature extremes.

Humidity Extremes

Humidity can cause premature damage to products. Low humidity levels dry out bonded or glued components while high humidity may cause corrosion. Typical humidity levels for non-operating test procedures are 10-95%, while operating test procedures extremes may be 20-80%.

Mechanical Shock

Products are subjected to shock either in the end-use environment or during transportation. The purpose of this test is to determine the fragility of the product. Testing includes the use of Half-sine, Trapezoidal (Square-wave), or terminal peak sawtooth shock pulses.

Vibration

A product will experience vibration in both the end-use and distribution environments. Therefore, it is critical that a product be tested to identify the vibration frequencies to which it is sensitive. Both sinusoidal and random vibration are conducted to identify the resonant frequencies within the product. This information can then be used to design a package or applied to the redesign of the product.

Altitude

Altitude may be important due to the difference in air density. The decreased air density may have an effect on the ability of a product to remain cool. A product operating normally at low altitudes may have significant differences in product performance at higher altitudes.

Margin Testing

Margin Tests are conducted to determine the ruggedness of the product above and beyond the required test specification. This can be applied to any of the above tests and can be used to collect additional data about a product design or manufacturing process.

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