Application of Electro-Tech Systems, Inc. (ETS) Electrostatic Test and Measurement Equipment for Medical Industry Applications – Helping the World Stay Safe in 2020

Electro-Tech Systems, Inc. (ETS) of Perkasie, Pennsylvania, USA would like to take this opportunity to explain the application of our test and measurement equipment as it relates to commonly referenced medical industry specifications and test methods.

ETS equipment is designed to condition and test the electrostatic parameters of materials. Static discharge is known to cause fires in operating rooms and other environments, which is why performing testing of material used in these environments (gowns, masks, gloves, foot coverings, etc.) is critical to the medical community.

ETS designs and manufactures a wide array of products for environmental control and electrostatic testing. In addition to medical related applications, our instrumentation is used to test materials and equipment, such as fire protection and military clothing. Commercial laboratories, along with glove and protective clothing manufactures utilize ETS instruments for testing incoming materials and finished goods. Universities and research institutions also utilize ETS instruments for sample conditioning and preparation.

The electrostatic performance of a material may vary greatly at different humidity and temperature levels. In order to produce a consistent material, most specifications require testing to be performed under controlled environmental conditions at specified temperature and humidity levels. To achieve this, a controlled environment chamber such as the ETS Model 5532 is commonly used. The electrostatic test equipment along with the samples are placed inside the chamber for conditioning and testing.

The American National Standards Institute (ANSI) and the Association of the Advancement of Medical Instrumentation (AAMI): ANSI/AAMI PB70 is the test standard that is recognized by the FDA and describes liquid barrier performance and classification of protective apparel and drapes intended for use in health care facilities. ANSI/AAMI PB70 is mainly focused in liquid barrier performance to evaluate safety and performance of protective clothing. Electrostatic properties such as static decay and surface resistivity are listed in test standard AAMI TIR 11.

In AAMI TIR 11, both electrostatic decay and surface resistivity are recommended to be tested. While Chinese National Standard, GB/T 19082 Technical requirements for single-use protective clothing for medical use, electrostatic decay is listed as compulsory test. Both AAMI TIR 11 and GB/T 19082 refer to standard IST 40.2.

The ETS Model 4406 Static Decay Analyzer (previous model 406D) is the recommended instrument per IST 40.2. ETS also recommends the Model 5532 Controlled Environment Chamber be used. It should be noted that branches of Chinese medical device testing institutes are using this specific ETS instrument for incoming and export goods testing.

Most of these standards and test methods are based upon MIL-STD-3010C Method 4046, which is used in applications originally intended for packaging of sensitive electronic devices. This method was then adopted and adapted by a wide variety of industries as it was found to provide accurate data for material performance in the medical field, textile industry, aerospace, food packaging and many other industries. Some commonly referenced test standards are listed below.

Region	**Test Standard**	**Association**
USA	AAMI TIR 11 Selection and use of protective apparel and surgical drapes in health care facilities	Association of the Advancement of Medical Instrumentation (AAMI)
China	GB/T 19082 Technical requirements for single-use protective clothing for medical use	Chinese National Standard
Europe, Asia, and USA	IST 40.2 Standard Test Method for Electrostatic Decay of Nonwovens Fabrics	Association of the Nonwovens Fabric Industry (formerly International Nonwovens and Disposables Association, or INDA for all INDA Standard Tests or IST)
USA	MIL-STD-3010C Method 4046	United States Military

For additional information please contact us at Sales@ets2.com