

Technical Bulletin #4 Conductive Flooring Information and Considerations

What is Conductive Flooring?

Conductivity is the ability of electricity to pass through a material. The more conductive that material is, the easier it is for the electrical current to pass through it. If the electrical current does not want to flow through the material, the restricted flow is called resistance. In this case, the material would be an insulator rather than a conductor of electricity.

The resistance to flow of electricity is tested in ohms when testing for conductivity. The higher the resistance in ohms, the poorer or lower the conductivity. Conductive flooring is normally used to allow any static charge to bleed off to the grounded floor before the charge (voltage) becomes high enough to cause a spark.

Where is Conductive Flooring Used?

Conductive floors find use in potentially explosive areas such as ammunition facilities, operating rooms (when using explosive anesthetic) and paint or solvent storage facilities. Today, small sparks that cannot be seen or felt can damage sensitive electronic components. The electronic industry is requiring static dissipating floors to protect these components.

Conductive Testing

As mentioned above, conductivity is measured by the resistance of the floor in ohms. Conductivity standards for explosive handling areas are normally 0 – 250,000 ohms measured across three (3) feet at 500 volts. For medical suites and other areas for conductive floors, the most common standard is 25,000 – 1,000,000 ohms measured across three (3) feet at 500 volts.

Electro Static Dissipating (ESD) floors comprise a new level of quantitative measure for the electronics industry. While the standards for the industry are still being established, the most common requirement is that the floors have a resistance in the range of 1,000,000 ohms (10^6) to 10,000,000 ohms (10^7). In some instances a maximum reading of 100,000,000 ohms (10^8) is specified. These ranges seem quite large, but are not when dealing with static electricity because the testing voltage is changed from 500 volts to 100 volts.

Another criterion for ESD coatings for the electronic industry is the length of time it takes for a static electric charge to dissipate through the floor. The most common value for “Static Electric Decay” is 10% decay in 0.5 seconds. This test is run according to Test Method Std #101, Method #4046 according to Mil Std HDBK-263A, February 22, 1991, page 83.

We will keep you up-to-date as new information on “ESD” coatings and testing procedures is published.

KEY RESIN COMPANY TECHNICAL BULLETIN



KEY CONDUCTIVE FLOORING SYSTEMS

KEY CONDUCTIVE is a two component, 100% solids epoxy/aggregate material that utilizes the latest in conductive floor technology.

- Conductive and Non-Sparking: The Electrical Resistance of Key Conductive is 25,000 to 1,000,000 ohms
- Provides a Chemically Resistant Finish
- Available in various finishes and colors for a variety of service properties
- Can be made waterproof with Key Waterproofing Membrane

KEY ELECTROSTATIC DISSIPATING URETHANE COATING #450-ESD is a two component urethane coating used in two coat systems for static control

- Can be used as a finish coat to KEY MORTAR SYSTEMS
- Available in Key Standard Colors
- Provides a Chemically Resistant Finish with Good Abrasion Resistance
- Available in Two Conductivity Ranges
 1. Low Range (most conductive): 1,000,000 to 50,000,000 ohms
 2. High Range (least conductive): 50,000,000 to 100,000,000 ohms

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