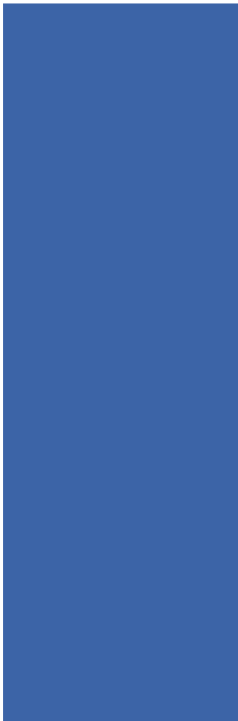
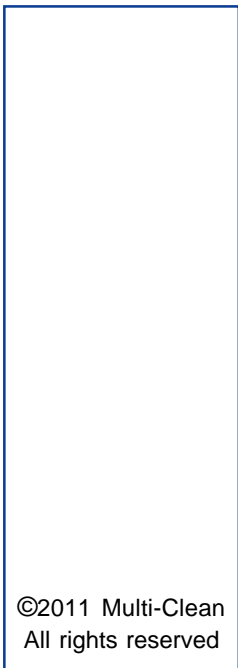


Static Dissipative Floor Care Method Bulletin 1404



A complete system of Multi-Clean® products and recommended maintenance procedures for a static dissipative floor care program.

**Multi-Stat Finish
Take Charge II
Stampede Stripper**



STOP - READ BEFORE PROCEEDING

This methods bulletin is to be used **only** by appropriately trained persons in conjunction with such training. **IMPROPER USE OR OPERATION OF THE MULTI-CLEAN (CHEMICALS OR EQUIPMENT) POSES RISK OF PHYSICAL INJURY OR PROPERTY DAMAGE.** Specific risks include, but are not limited to, burns, and improper application of chemical products (e.g. wrong product, wrong product combinations, improper applicator use, and improper curing.) Because successful and safe application is the responsibility and obligation of the trained applier, the manufacturer disclaims any and all warranties, express or implied, including warranties of **MERCHANTABILITY** or **FITNESS OF PURPOSE**. The manufacturer shall have no obligation except to replace repair, or pay for, in its sole discretion, any chemical product or equipment shown to be defective. No person has authority to waive these disclaimers or make any representations or warranties on behalf of the manufacturer, except in writing signed by the manufacturer. If you have not had training with the particular product or equipment you intend to use, please call:

Multi-Clean at (651) 481-1900 to arrange training.

DO NOT USE THIS MULTI-CLEAN SYSTEM OR ITS COMPONENT PRODUCTS WITHOUT APPROPRIATE TRAINING.
FOR INDOOR USE ONLY.

THE ESD RECOMMENDED PRODUCTS

1. Finish	2. Cleaner	3. Stripper
Multi-Stat Floor Finish	Take Charge II Cleaner	Stamped High Performance Stripper
<ul style="list-style-type: none">• Brilliant shine• Highly repairable• Ultra high speed responsive• Dissipates static charges	<ul style="list-style-type: none">• Neutral, non-dulling• Removes soil• Pleasant fragrance• Helps retain resistivity	<ul style="list-style-type: none">• Removes multiple coats• No solvent odors• Pleasant scent• Excellent value

UNDERSTANDING ESD

Who Should Be Concerned....

Medical Device Manufacturing, Computer Rooms, Switching Stations, Hospital Labs and Critical Care Areas, Clean Rooms Laboratories, Circuit Board Assembly, Electronic Components Assembly, Printing and Converting Operations, Virtually any place computers and sophisticated microelectronics are made or used.

Our increasing dependence on computers and microprocessor controlled equipment and instruments is broadening the spectrum for users of Static Control Products.

- * **Static Electricity** is the accumulation of an electric charge. It is electricity at rest (static), as opposed to electric current which is moving.
- * **ESD** (Electro Static Discharge) occurs when the static charge is transferred from a material (or person) that carries the charge to an electrostatic sensitive device.

Problems caused by ESD...

- Damage of sensitive electronic components during manufacture, assembly, packaging and storage.
- Computer and Office Equipment failures and errors.
- Production problems with paper, plastics, and other materials in printing, packaging, or converting.
- Ignition of combustible vapors and dusts.
- Attraction of dust, dirt, and microbes to environmental surfaces.
- Damage to microprocessor controlled machinery.

The increasing complexity of electronic equipment, computers, manufacturing equipment and processes has made effective control of ESD extremely important!!!!

Static charges can also be created by movement of any object across a floor provided there is separation of two dissimilar objects.

How Electrostatic Discharge Occurs

1. Generating a Charge

When a person walks across a floor, static electricity is generated simply by the contact and separation of the soles of the individuals shoes from the floor (this phenomenon is accentuated during low humidity and on certain types of flooring such as carpeting).

2. Transferring Static Electricity

Electrostatic Discharge occurs when the built up static electricity (on a person or object), is transferred to an electrostatic discharge sensitive object. It is this transfer of electrical energy that can be so damaging to electronic devices.

WHAT IS ESD?

Properties of Materials: A method of classifying the ability of materials to allow flow of electricity is by Electrical Resistance (the unit of resistance is the ohm). Four resistance categories help us differentiate the electrical properties of materials and their ability to generate static charges.

- * **Insulative:** This type of material does not allow for the flow of electrons across or through its bulk. An insulative material has high electrical resistance.
- * **Anti-Static:** This type of material will resist the build-up of static charges.
- * **Static Dissipative:** *This type of material can allow static charges to be generated, however, electrons are easily transferred to ground or other conductive objects. This material has a lower electrical resistance compared to an insulative material.*
- * **Conductive:** This type of material allows a charge to flow through it with ease, meaning it has low electrical resistance.

Understanding Performance Properties and Terminology Used

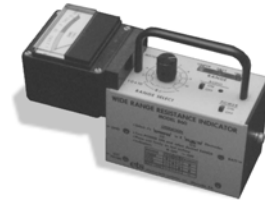
- * **Surface Resistivity:** This property measures surface resistivity in ohms/sq (read "ohms per square"). The surface resistivity allows us to classify surfaces (insulative, anti-static, static dissipative, conductive) and allow monitoring performance of a static dissipative finish.

Surface Resistivity Range

1 x 10¹⁴ or greater
 1 x 10¹⁰ to 1 x 10¹³
 1 x 10⁷ to 1 x 10⁹
 1 x 10⁶ or less

Classification

Insulative
 Anti-Static
 Static Dissipative
 Conductive



Surface Resistivity can be monitored with a simple resistance meter or a more sophisticated mega ohm meter.

- * **Decay Time:** This is a measurement of the time it takes for a charge to dissipate from the surface. The standard test method measures the time it takes to dissipate a 5000 volt charge. Varying standards usually require a decay time of 2-5 seconds.
- * **Triboelectric Charge Suppression:** Triboelectric charging is the term used to describe the generation of static electricity by rubbing two materials together (such as walking across a floor). This is a difficult property to measure and is not as important as surface resistivity or decay time.

Materials that are insulative have an excellent ability to generate and hold static charges. Some examples of insulative materials include conventional tile, terrazzo, and concrete flooring.

MULTI-STAT ESD CONTROL FINISH

Properties of Multi-Stat Finish

Surface Resistivity	10 ⁷ @ 50% humidity
	10 ⁹ @ 15% humidity
Decay Time	0.1 Secs (5000 V)
% Solids	20% (by Weight)
pH	9.3
Slip Resistance	Passes ASTM D2047 (James Machine Method)
Dry Time per Coat	2 hours
Static Charge Generation	None

Key Features

- Prevents Triboelectric charging of pedestrians
- Dissipates a 5,000 volt static charge in less than 0.1 seconds according to MIL-BB-81705B
- High gloss finish offers excellent durability and is easy to maintain with high speed equipment.
- Slip Resistant Finish per ASTM D2047.

Static Charges do not have to be felt or seen to cause damage. For a person to feel a discharge, the charge would be in the 4000 - 6000 volt range, to see a spark requires 8000 volts. In contrast, some electronic equipment can be damaged by a static discharge of less than 100 volts.

