

## Conductive and Antistatic-ESD Powder Coatings: Smart Coatings by IBA Kimya

In many industrial applications, electrostatic charge and its control has always been an important issue. Discharging of this electrical load in a controlled manner is vital not only to protect human life, but also the working environment as well.

Under right conditions the charge build-up on insulating materials may reach to 40,000 volts. Then this electrostatic charge may result in a spark upon contact with a surface at sufficiently different potential. Eventually, uncontrolled discharge of the load will result in an injury or a damage depending on the contacting surface's being a human body or an electrical circuit.

The main principle of electrostatic discharge protection is to prevent the build up of the charge by earthing the components over conductive or electrostatically dissipative surfaces. Such surfaces must go down to  $10^9\Omega$  in resistance to exhibit safe dissipation of static load to reach the equipotential balance between the components and personnel.

More than ESD, industry needs conductive coatings in order to transform plastics, composites and even glass into conductive materials and to make EMI shielding.

Surface resistivity of a substrate simply defines its electrostatic property.

	Surface Resistivity (Ohm/sq)
Conductive	$10^2 < \Omega < 10^5$
Dissipative	$10^5 < \Omega < 10^{11}$ (acc to IEC 61340-5-1 ; $\Omega < 10^9$ )
Insulative	$10^{11} < \Omega$ (acc to IEC 61340-5-1 ; $\Omega > 10^9$ )

As the creator of smart coatings, IBA Kimya introduces its new product; **IBAground**. It is now possible to obtain both ESD and conductive surfaces with IBAground. This new product, upon application on various substrates, substantially affects the electrostatic properties.

**IBAground** will find its way in a number of applications like computer workstations, electronic cabinet enclosures, furniture, clean room and semiconductor equipments, work benches and shelving with its ESD property.

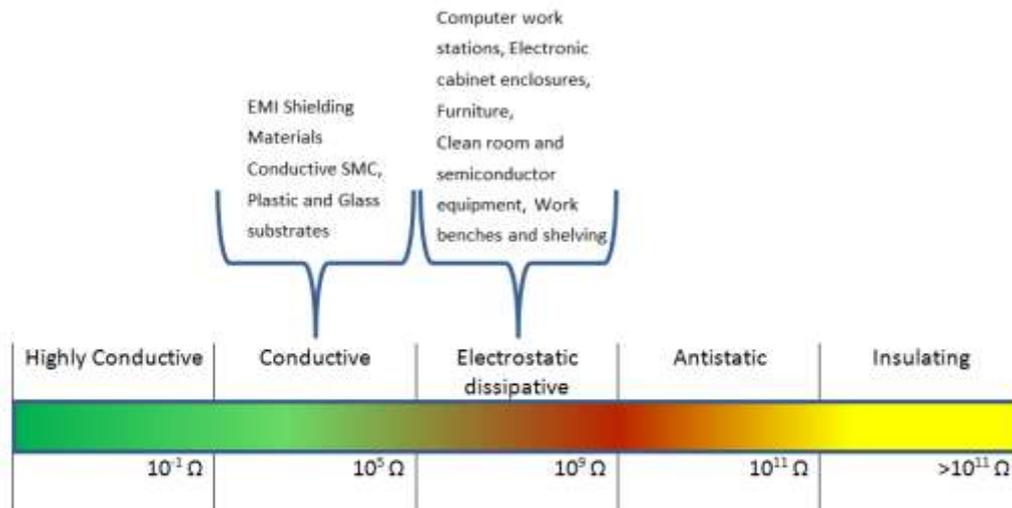
Needless to say that the **IBAground** positively contributes to the physical properties of the applied surfaces not less than typical powder coatings. It can be formulated in different chemistries like epoxy, hybrid (EP/PE), polyester binder systems. It gives superior hardness to the applied substrates, plus exhibits an excellent adhesion. Polyester based IBAground will have superior UV resistance for outdoor applications as well. Upon request, IBAground can also be formulated with antibacterial property which eliminates bacteria and germs from the applied surfaces. Antimicrobial tests are done according to JIS Z 2801 – Antimicrobial Activity Tests standards

**IBAground** offers ;

- Excellent conductivity
- Wide range of colors
- Superior mechanical properties
- Excellent hardness
- Excellent flexibility

- Excellent adhesion
- Excellent impact resistance
- Good salt spray resistance
- Superior outdoor durability
- Simple application with an ordinary corona gun
- Antibacterial/Hygenic property

One must keep in mind that both pretreatment and increased film thickness will increase the resistivity, hence will reduce the conductivity.



**IBAGround** has been successfully used in reply to an enquiry for sewing machines. The surfaces of the machine in contact with the thread were coated with **IBAGround** to achieve electrostatically dissipative surfaces.

**IBAGround** is not limited to application on metal substrates. **Truemold**, another member of the smart coating series for inmold SMC applications, can also be formulated in such a way that SMC parts can transform into dissipative or conductive surfaces. This synergy creates a perfectly coated, conductive or dissipative composite element.

The SMC component is coated with in-mold powder coatings during the pressing operation. When the press releases the mold, the obtained substrate will immediately exhibit conductive property. This brings a high added value to the automotive parts, as they are to be finished with a layer of electrostatic liquid coating as a top coat.



IBA KIMYA has grown over many years by listening to the needs of the industry. Smart coatings have already revolutionized many sectors. Now the smart coating **IBAGround** is offering the industry conductive and ESD surfaces.

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