ELECTROSTATIC BEHAVIOUR OF TRESPA® TOPLAB® *BASE*

Electrostatic charges arise from changes in the contact between two materials (friction). The bigger the differences between the materials are and the faster contact changes appear, the bigger the charges are (frictional electricity). The static charges caused by people for example (friction, clothes) can generate electric tensions of ten thousands of Volt. Prevention of, or protection against, electrostatic discharge is possible at several levels:

1. The formation of electrostatic charge may be influenced by:
- the level of the relative air humidity;
- ionisation of the air;
- the choice of the materials (for example clothes and shoes).

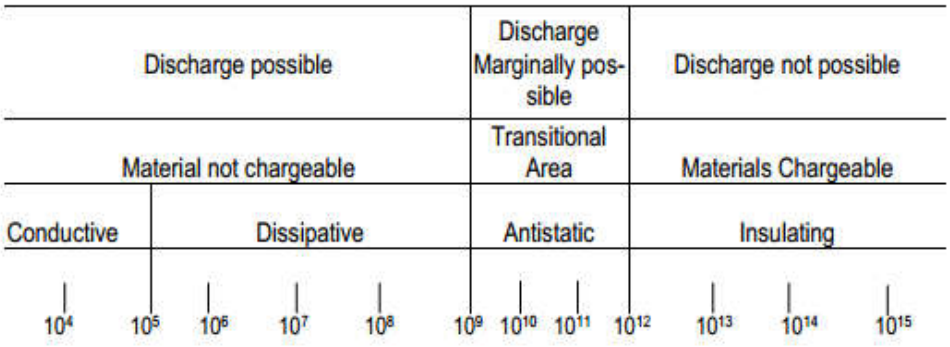
2. Conductive and deductive materials distract electrostatic charges whereby the rapidity of the distraction depends on the resistance.

3. Antistatic materials prevent accumulation of charges: these Materials cannot even be charged and thus make the local creation of increased potential differences impossible.

Theory

Electrostatics

The behaviour of materials concerning the distraction of electrostatic charges can be described with the help of a scale that is divided based on the surface resistance in Ohm (Ω).



Between the conductive (<10^5 Ω) and the isolating materials (>10^{12} Ω) there is a group of materials that is suitable for a couple of interesting applications. Within this group, there's a distinction between "antistatic" materials (10^9 till 10^{12} Ω) and "deductive" materials (10^5 till 10^9 Ω). It is true that electrostatic charges can be formed on antistatic materials as well, but these charges don't stay at one place and don't accumulate.

It is not possible to generate electrostatic charges on deductive materials, as far as these materials are grounded. In that case, applied charges are being removed relatively fast, depending on the deduction resistance.

ELECTROSTATIC BEHAVIOUR OF TRESPA® TOPLAB® *BASE*

Test methods

The essential parameters are resistance and electric discharge time. Measuring results can strongly depend on the test method used. That's why it is important to indicate the test method for each measured value.

The resistance (R) and the specific resistance (p) can be measured with sheet materials like Trespa as follows:

- Between two electrodes on the surface of the sheet, the surface resistance Ro is determined,
- Between two electrodes on the front and back of the sheet the volume resistance or the deduction resistance Ra is measured.

To get reliable and reproducible values, it is very important that during the measurements the contact
between the sheet and the surface of the electrodes is as big as possible (critical with rough surfaces!)

Measuring is done according to the European standard IEC 60093 (deduction resistance and surface resistance).

Material properties

Test results

The following data are based on information from the International Committee of Decorative Laminate Industries (ICDLI) and apply to HPL (High Pressure Laminate) in general as defined in EN 438-4. Trespa® TopLab® ^{Base} (melamine surface) falls among these. The following therefore only applies to Trespa® TopLab® ^{Base} panels.

HPL minimizes the generation of charge by contact-separation or rubbing with another material. It does not need to be grounded. Surface resistivity is between $10^9 – 10^{12}$ ohms and a chargeability of V ≤ 2 kV according to CEI IEC 61340-4-1 so that HPL are considered as antistatic material.

The size of these values will be determined by several factors:

1. The climatologic ambient conditions, especially the fluctuations in the relative air humidity. HPL, which consists of wood based fibres, will be influenced by humidity. It is in dynamic balance with its environment. Therefore the surface resistance of HPL can amount to 10^9 Ω at room temperature and 60% Relative Humidity (RH) and 10^{11} Ω at room temperature and a RH of 20%.
2. Composition of HPL

Application

HPL as an antistatic material offers, without grounding, excellent protection against electrostatic charges in the environment.

Because of features, such as mechanical and chemical resistance and antistatic behaviour, HPL can be potentially applied everywhere where the avoiding of electrostatic charge is required:

- Office- and laboratory furniture;
- Institutions;
- Clean rooms;
- Health care (hospitals, pharmacies);
- Optical industry;
- Production of sound carriers

ELECTROSTATIC BEHAVIOUR OF TRESPA® TOPLAB ® *BASE*

Disclaimer

The information shown in this document may not be suitable for all applications and jurisdictions. We provide you with testing data and certification information for informational purposes only. We strongly recommend that you or any other user of this document obtains advice regarding compliance with design requirements, applicable codes, laws and regulations, and test standards from independent experts. Please check your local codes and design requirements for proper use. Trespa will not accept any liability in relation to your use of this document.

All oral and written statements, offers, quotations, sales, supplies, deliveries and/or agreements and all related activities of Trespa are governed by the Trespa General Terms and Conditions of Sale (Algemene verkoopvoorwaarden Trespa International B.V.) filed with the Chamber of Commerce (NL) on 20 February 2015 under number 24270677, which can be found on and downloaded from the Trespa website, www.trespa.com.

All oral and written statements, offers, quotations, sales, supplies, deliveries and/or agreements and all related work of Trespa North America, Ltd. are governed by the Trespa North America General Terms and Conditions of Sale, which can be found on and downloaded from the Trespa website, www.trespa.com/documentation. A copy of these general conditions of sale will be provided free of charge on request.

All general terms and conditions other than the conditions mentioned above are dismissed and do not apply, regardless of whether such terms and conditions are referred to on requests for offers, offer confirmations, stationery and/or other documents of the other party, even if Trespa does not expressly object to such terms and conditions