

## ELECTROSTATIC LOADING PEOPLE GOING ON GROUNDS LAMINATE

### How does the static electricity develop?

The smallest part of matter, the atom, is composed of small electrically charged parts. Protons in the center of the atom charged positively and the electrons, which move at high speed on the electronic cover, around the core. With each time natural balance between positive loads and negative loads is modified, it results from it a potential difference electric: the electric tension. This tension is measured in Volt (V) and appears different manners.

For example:

- By friction, when various materials rub one on the other, (clouds in the sky or shoes on a floor covering).
- By induction, at the time of the movement of a reel around a magnet or a magnet in a reel (dynamo of a bicycle, electric generator)
- By a chemical effect, at the time of the chemical decomposition of a material (electric battery)

The resulting tension always tends to balance when an electric driver is available. The electrons then move negative pole with the positive pole: an electrical current appears. Its intensity can be measured in Amp (A). In addition, all the materials crossed by an electrical current offer a more or less high resistance. This one is expressed in Ohm ( $\Omega$ ).

By its percentage of moisture raised, the human body is a good electric conductive that the electric charge carriers, if they do not have other choices, will take readily. Primarily by friction, the human body takes care quickly of electric particles during the day and when those cannot be discharged through the humid air and that the floor covering (that it is anti-static or not) is isolated from the body by insulating soles, there will be, inevitably short unloading of the electric power accumulated in contact with a conducting element (handle of door, crawls of staircase, anybody not isolated from the ground...). It results an electric shock from it even a flash in certain cases.

### Testing method

The laminated grounds are not prone to any normative request from an electrostatic point of view. There are not thus concrete norms relating to the electrostatic behavior of the laminated grounds.

The electric states of tensions of the stratifiés grounds are controlled according to norm DIN 54 346 and norm DIN 54 345/2.

However, in the case of situations to risk, buildings at the strong risk of explosion and medical buildings in particular, there are particular requirements with respect to the electrostatic behavior of the floor coverings. Instruction ZH 1/200 then is applied.

### Experiments with electrostatic loading of laminated grounds

- At the time of the use of laminated grounds it is possible that people are charged
- The electrostatic changes can result independently of the ground on which the coating rests
- There can be electric feeling of unloading, that it that is under soundproofing layer used

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### To avoid the electrostatic loadings related to the laminated grounds

- By the creation of an optimal climate in the room, with a constant humidity of the atmosphere from at least 50%
- By the use of suitable additives of cleaning it is possible to create on the surface of the ground laminated a fine film supporting the passage of the electric charge carriers between the body and the ground.
- By avoiding the use of clothes with high synthetic fibre share when ambient moisture is low, because these materials electrically not or slightly drivers take care at the time of the movements, inevitable, of the body.

### Resistance of conductivity of laminated grounds

The electrostatic loading people walking on a ground is in correlation with the resistance of conductivity of this ground which one measures in Ohm (•). Tests on the resistance of conductivity of laminated grounds of various manufacturers (11 products) were carried out by the laboratory of tests OTI in Vienna. An identical resistance of conductivity of X Ohm was measured.

### Conclusion

*A causal relation between the nature of laminated grounds of various manufacturers and an increased electrostatic loading cannot, from a technical point of view, to in no case to be established ! If one observes nevertheless subjective differences in electrostratic sensitivity to the loading, that can be due only to the nature of the environment on the spot.*

The sensitivity to the electrostatic loading is not a phenomenon limited on the ground laminated. It is also observed, in unfavourable circumstances, on plastic or textile floor coverings.