



Bolidtop E.lo®-floor systems

the sensitive solution

Conducting or dissipative floors used to be the solution to the problem of static electricity. A faster discharge ensures limitation of the damaging consequences of this. This idea was the basis for the Bolidtop Stato®- series, which is still being used with great success. The principle of these floors is that the electric charging of the body is tolerated and that the discharging takes place in a controlled manner. The actual charge on a body is thus limited.

Elaborating on the continuing technical developments in the industry and according to the saying: "Prevention is better than cure", Bolidt has gone a step further and has developed a

series of systems with the basic idea of preventing the charging of static electricity instead of controlled discharge.

This means shifting the focus to the source of the problem. With the **Bolidtop E.lo®-series**, the solution to this problem was introduced in practice.

Bolidtop E.lo® is the name of a series of synthetic floor solutions which prevent the exchange of electrons between shoe and floor from occurring. This prevents the formation of electrostatic charge so that even the most sensitive equipment is blessed with a long life.

Bolidtop E.lo®- floor solutions, the foundation of ESD-control



Technical requirements

During the development of the Bolidtop E.lo®-series, serious consideration has been given to the ideas and recommendations of leading manufacturers in the electronic and high-tech industries, hospitals and laboratories. Combined with the experience gained from our current Bolidtop Stato® - floors, this has led to the formulation of a number of requirements to which the next generation of a-static synthetic floors should comply:

Electrical properties

The safety of people must be guaranteed. In practice this means that in the event of a short circuit, for example in the mains voltage, the electric current must be restricted to such an extent that no muscle fibrillation occurs. The ohmic lower limit must ensure this.

There must also be a guarantee that damage to sensitive equipment will be limited. To achieve this, the ever-more sensitive electrical equipment must be prevented from exposure to differences in potential. A human body must not *at any time* carry a destructive static charge. A charge of a mere 20 volts can already be destructive....!

Mechanical properties

Bolidtop Stato® - floors are currently being applied in areas subjected to medium to heavy work traffic. In those areas, durability has the highest priority. In view of the fact that a production area for sensitive equipment has light work traffic, other mechanical requirements apply here. The development focus must be on the combination of comfort for working and walking. Among other things, this has consequences for the flexibility built into the floor.

Chemical properties

The demands on the chemical resistances were such that the floors of the new series would have to be resistant to most oils and fats, inorganic acids and alkalis used in electronic industries, pharmaceutical industries and in the health care.



Development

Aesthetic properties

Floors based on synthetic resins are usually perceived as being 'cold'. There were requests to do something about this.

Maintenance

A low-chargeable floor (and also the conductive or dissipative floor) is more critical than an isolating industrial floor, as far as maintenance is concerned. In particular, an isolating layer on the surface must be prevented from forming during working and the daily cleaning of the floor; natural and synthetic waxes which are added to cleaning materials are disastrous for the continued functioning of the floor.

On the basis of our product know-how, Bolidt has therefore developed methods and additives to ensure that the floor *continues* to do its work properly.

The conclusion was soon drawn that the charging on a person is largely dependent on the interaction between different materials: particularly friction between shoes and the surface of the floor and, to a lesser extent, friction of the foot in the shoe, friction between clothing and the skin but also friction between clothing and clothing. In the development of the Bolidtop E.lo® - series, the starting point was *the floor in combination with footwear*. That was the reason why shoes were included in the development process.

We compiled countless chemical formulas and applied test panels on a large number of substrates for extended tests with various existing types of footwear on the market. The definitive testing methods and test results were determined, together with TNO in Leiden, the prominent Netherlands Organisation for Independent Applied Scientific Research.

Bolidt has not lost sight of the fact that the floor systems have to be easily processed and reproduced again and again. Fortunately, we have always had a large number of specialised applications teams in our own employ. They have had an important share in the practical feasibility of the project.



The result: Bolidtop E.lo®

Bolidtop E.lo® is a new series of seamless synthetic floor systems which are applied in liquid form and are adjustable with respect to electrical properties. Bolidt Synthetic Products & Systems is the first to succeed in setting up the systems of the series in such a way that for each application the right floor can be advised. The ultimate objective was the prevention of persons possibly being electrically charged through friction. This objective has been achieved, also in combination with different types of footwear. There are varying results from different types of shoes, so that the choice of shoe should really be dependent on the choice of system in the Bolidtop E.lo® - series.

The Body Voltage Generation of the person on a number of floor/shoe combinations has been reduced to less than 5 volts in practice. In view of the fact that this severe requirement does not hold for all applications, more economical systems in the same series have been developed for use where the requirements are less severe. So there is something for everyone.

Directly related to the Body Voltage Generation requirement is the Decay time. Even if the charge on the person is minimal or conforms with the requirement, it is advisable that the rest charge is discharged quickly. The Decay time then fulfils a

safety function. If the charge exceeds the set limit, it is discharged in such a short time that the acceptable level is reached before a person can touch the sensitive electronic equipment.

The electrical resistance values in the systems have become less important as long as the safety of people is kept in mind. All Bolidtop E.lo® - systems in the series have been formulated with care in relation to this. In practice, the resistance values (R_g) of the systems are between 100 en 500 k Ω . The resistance of the total system, namely the system person, with clothing, footwear, floor as a whole, does not, in general, exceed 1 G Ω .

By integrating various degrees of hardness, the systems in this series are not only suitable for prolonged and comfortable foot traffic as is the case in laboratories, but they are also resistant to heavy traffic such as in areas where motorised forklift trucks are driven.

By the use of a range of basic colours combined with coloured 'decoflakes', the work climate is positively influenced. With this new series we have succeeded in letting the material itself radiate positivity. Even if you have got out of bed on the wrong side you will experience how pleasant it is to work on our floor...



Applications

For every area where sensitive equipment is used and every area where flammable material is used, Bolidt's developments can be considered.

- Are you a *manufacturer* of audio/video equipment, semi-conductors, PCB's, transistors, tapes, computers, calculators, robots, telephones or do you work in EPA's?
- Are you responsible for the *storage/distribution* of audio/video equipment, semi-conductors, PCB's, transistors, tapes, computers, calculators, robots or telephones?
- Are you a producer of flammable materials which can catch fire from a spark or are you a distributor or user of these?
- Do you work in a (conditioned) laboratory which both uses sensitive equipment and carries out research on this equipment on a smaller scale and perhaps even manufactures it?
- Do you work in explosive areas or is work carried out with severely static chargeable materials such as synthetics ?

If the answer is 'yes' to even one of these questions and you are planning to have a new building constructed or renovated, please feel free to contact us. We will gladly advise you on which floor system from our Bolidtop Stato[®], and Bolidtop E.lo[®] - series is the most suitable for you.



Bolidt: for every question...
a specific floor solution.



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