

Steady technical development in the electronics and semiconductor industries leads to ever-rising standards for the required materials. The focus of current discussions, among other things, is the problem of electrostatic discharge (ESD = Elektro Static Discharge).

Electric charge is generally caused by dynamic friction between two surfaces (triboelectric). This results in a loss of electrons for the releasing surface (positive charge) and a gain in electrons for the receiving surface (negative charge).

Triboelectric charge attracts dust particles (i.e. wafer contamination). Uncontrolled static discharge leads printed circuit and component contact degradation. Antistatic materials stand out through the fact that no static discharge is generated through friction.

Due to the high ESD sensibility of the components, it is imperative that solely materials with properties that prevent exposure are used (please refer to DIN EN Norm 61340-5-1).

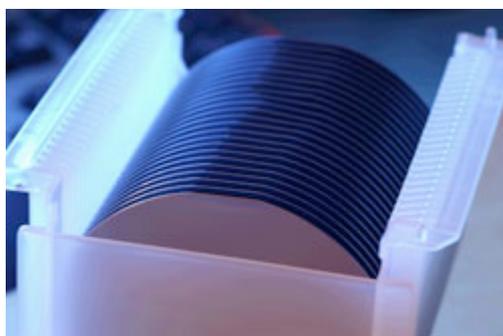
Also, increasingly stringent regulations on the number of particles tolerable in clean room environments reduce the choice of materials to dust repellent surfaces, i.e. antistatic and conductive surfaces.

ESLON-DC plates are key to the solution to the ESD problem (DC = Dust Clean).

Applications

The range of applications of ESLON-DC sheets varies from the electronics industry, automation technology, clean room technology to machine and plant construction. Due to their high transparency, our materials are particularly suited for machine enclosures, protective covers, partitions, laminar flow units, clean room storage systems and numerous additional applications. Due to the electrostatic conductivity of ESLON-DC, even highly sensitive components are protected from uncontrolled electrostatic discharges, which may occur when non-conductive plastic materials are used. For shielding light-sensitive production processes (i.e. UV-exposure, laser beams), our product range includes a number of tinted colour variations.

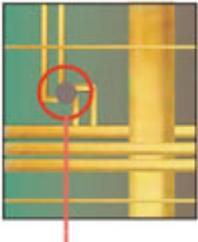
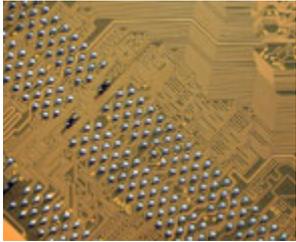
The base material for the production of electronic elements, and accordingly, integrated circuits or chips, are the so-called wafers. Wafers are primarily produced from monocrystalline silicone. The production process requires an extremely clean environment (clean room production), since contamination through the most infinitesimal dust particles will negatively affect product quality. Electrostatic discharge caused by non-conductive plastic materials generates a magnetic field which attracts dust and dirt particles.



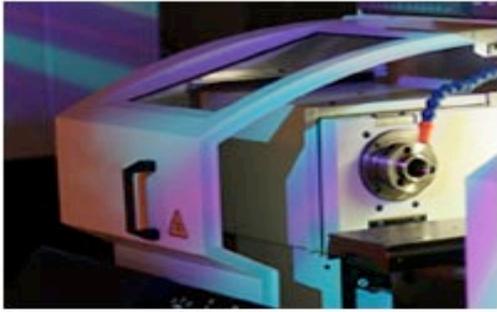
Silicone wafer in carrier box

Electronic components, such as micro processors or micro chips, may be destroyed or permanently damaged through an electrostatic discharge as low as 20 V. The super-thin integrated circuits may melt and cause a malfunction or irreparable short circuits. Electrostatic discharge significantly interferes with highly sensitive sensors, may lead to interruptions in the production process, and cause malfunctions in electronic components.

Constantly rising quality and safety standards in the electronics industry, the telecommunications industry and automotive electronics, accompanied by the miniaturization of electronic component parts combined with a higher capacity, require an elaborate ESD concept in order to avoid damages. From an entrepreneurial point of view, the subsequent time- and labour intensive removal of damaged electronic components, which may also entail expensive and compromising product recalls, must by all means be avoided. Eslon-DC provides an important contribution to the solution of the ESD problem.



Degraded / Melted circuits



Machine Cover



Machine Cover



Application in explosion
hazardous area



Security glazing



Cover for test and inspection systems
for printed circuit boards

