

NANOTECHNOLOGIES IN THE WORLD OF COMPOUND - LATI OHM CNT

The capability of achieving electrical conductivity on polymeric materials is guaranteed by the mean of special additives transporting electric charges through an insulating matrix.

Compounds filled with carbon black, graphite and carbon fibers, steel fibers or intrinsically conductive polymers are nowadays common. However, all these systems show a range of valid limits, related to the electrical conductivity and dimensional stability of manufactures, mechanical properties, the presence of abrasive dust during the use etc.

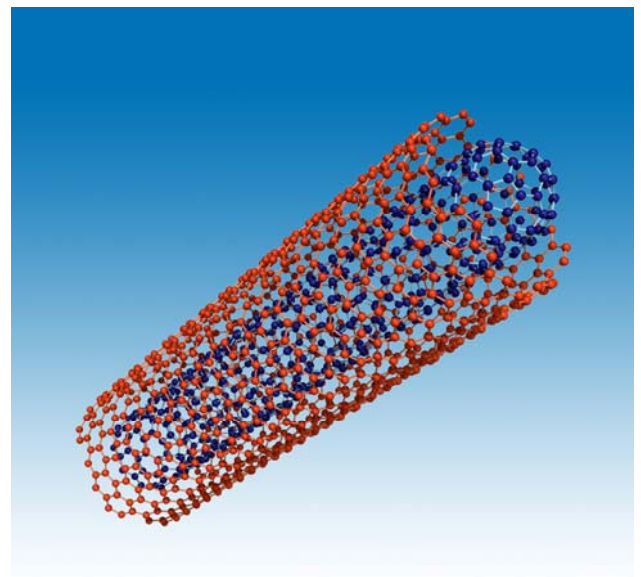
The best solution to all these problems would be to use a filler featuring very high electrical conductivity, good mechanical properties but not leading to differential shrinkages and free of dust and particle release, even in case of continuous working.

This ideal additive has not been available till the introduction on the market of carbon Nanotubes.

Morphologically similar to standard carbon fibers, Nanotubes are obtained through the growth of tubular segments in which graphitic structures are perfectly regular and oriented, maximizing the ratio between electric conductivity and weight.

Nanometric dimensions and the peculiar **geometry of Nanotubes** allow a very high number of contacts among fibrils scattered in the polymeric matrix, leading to consequent electrical conductivity.

However no orientation phenomena generating differential shrinkages (longitudinal and transversal to the flow) are to be expected thus very dimensionally stable moulded parts are obtainable.



The great efficiency of **carbon Nanotubes** allows to obtain a very low electrical resistivity (actually up to 10 ohm/cm) already with filler contents lower than 3%, down to 1% for materials filled with glass fibers and conductive ceramic.

Excellent electrical performances and dimensional stability match with

extremely clean application, indicating LATIOHM CNT as winning grade also for those applications where sloughing is not acceptable, e.g. electronic industry.

On the contrary of carbon and steel fibers, these grades are **absolutely free of dust and particles production caused by the wear and leading to pollution**, abrasion and electric short circuit.

The low percentage content of filler allows to keep neat resin mechanical properties, without losing impact strength, as it happens by using massive loads of carbon black and graphite.

LATIOHM CNT offer **excellent homogeneity on superficial electrical properties featuring no "hot spots" that is zones where the electrical conductivity is much lower than the medium value - as it happens with steel fibres.**

Outstanding surface finish without defects, safe handling and very easy transformation: these are further advantages of the LATIOHM CNT family products.

LATI offers nowadays the new range of electrically conductive Compounds LATIOHM CNT, filled with carbon Nanotubes and destined to those sectors where absolute performance is mandatory.

Compounds are already available on:

- PC
- PPS
- PEEK
- PA

With **LATIOHM CNT** it is now possible to have conductive thermoplastics products for:

- Electronic, medical and micromechanical field where highest cleaning is needed.
- All those parts which have to respect security rules against explosion dangers or accidental static discharge.
- Conductive parts, also made up of very thin walls, where cavity filling would be difficult
- Items destined to the electrostatic painting without using primer or specific treatments.

For any further information do not hesitate to contact sale department and LATI technical assistance.