avanzare

Antistatic/ESD additives
Electrostatic dissipation and discharge protection

www.avanzare.es
sales@avanzare.es
T. (+34) 941 58 70 27

Photo by lcs9
Antistatic/ESD additives
Electrostatic dissipation & discharge protection

Electrostatic Dissipation, 2
Technologies, 3
Our antistatic/ESD additives range, 4-5

For rubber, 6
For EVA, 7
For TPU, 8
For PU, 9
For PVC, 10
For PA, 11
For coatings & paints, 12
For polyolefins, 13
Graphene materials, 14
Electrostatic dissipation

Resins and plastics are intrinsically insulating materials; nevertheless, materials with conductive and/or antistatic performance features are increasingly demanded for production, protection, comfort and aesthetical purposes.

Our antistatic/ESD additives impart certain conductivity in host materials so that they can release static electricity effectively in a controlled way and thus prevent problems caused by static electricity and uncontrolled electrostatic discharges, such as electric shocks, destruction of electronic circuits, sparks, appliance malfunctions, dust adhesion, etc.

Electrostatic dissipation
- Low dosage required
- Long-lasting
- Extremely low humidity dependence
- Colourable
- Resistance level range $10^7 - 10^9$ Ohms

Carbon blacks
- Black colour
- Non humidity dependent
- Permanent
- Resistance level range < $10^6$ Ohms

Graphene materials
- Low dosage required
- Long-lasting
- Extremely low humidity dependence
- Colourable
- Resistance level range $10^6 - 10^9$ Ohms

Migratory additives:
Sulfonates, quaternary amines, etc.
- Migratory, non-permanent
- Humidity dependent
- Colourable
- Limited to $10^9 - 10^10$ Ohms

ESD Standard EN-61340
EN ISO 20344 to 20347:2007
Our product are specifically developed to ensure compatibility with the host matrix, and suitability for the requested performance.

- Antistatic and ESD long-lasting performance
- Colourless and colourable
- Non-migratory
- Low dosage required, cost-effective
- Minimal effect to host material properties
- Food contact grades available
- Solid, liquid, pellet MB formats available

**avanSTATIC, avanNATUR and avanION antistatic additives ranges**

**avanSTATIC** rubber / plast-rub / plast

**avanNATUR** rubber / plast-rub / plast

**avanION** rubber / plast-rub / plast

**avanION** TPU-MB

**pu**: avanION-35

**PVC**: avanSTATIC PVC A-03

**EVA**: avanNATUR EVASTAT

**PA**: avanNATUR nylonSTAT

**Epoxy**: avanNATUR EPOxSTAT

**Coatings and paints**: avanNATUR anti-dust

**Silicone**: avanSTATIC SILICONE L

**Polyolefins**: avanSTATIC polymer

+ **tailor-made solutions for other materials upon demand**

![Graphene compounds](image)
Antistatic/ESD additives for rubber:

NBR rubber: avanSTATIC rubber (powder format) & avanSTATIC plast-rub (liquid format)
Other rubber grades: avanSTATIC plast (liquid format)
Latex: avanSTATIC liquid 6, avanSTATIC liquid 7 FC (liquid formats)

+ tailor-made antistatic additives depending on material and production process requirements

Antistatic/ESD additives for EVA

avanNATUR EVASTAT - With a completely natural formulation free from petroleum-based materials, this effective antistatic-ESD additive is available in solid and liquid format and suitable for mixing in bambury for the production of EVA sheets and foams with different densities.

For more information and TDS, please contact: sales@avanzare.es
Antistatic/ESD additive for TPU

avan\textsc{static} TPU MB: concentrated MB in TPU pellet format to match the electrical resistance target of each of our customer’s products. Different TPU grades for the base of the MB are available.

Antistatic/ESD additives for PU

avan\textsc{ion} 35: cost-effective ESD and antistatic additive. It is an anhydrous additive for PU 2K colourable formulations.

+ tailor-made antistatic additives for PU depending on material and production process requirements

For more information and TDS, please contact: sales@avanzare.es
Antistatic/ESD additives for PVC

avanSTATIC PVC A-03: powerful antistatic agent, based on a solid system that generates an intrinsically conductive fibrillar structure within the host polymer matrix. It provides permanent dissipative performance.

avanNATUR nylonSTAT: With a completely natural formulation free from petroleum-based materials, this effective antistatic-ESD additive is available in liquid and pellet concentrated masterbatch.

+ tailor-made antistatic additives for PA depending on material and production process requirements.

For more information and TDS, please contact: sales@avanzare.es
Antistatic additives for coatings and paints:

**avanNATUR EPOxSTAT**: With a completely natural formulation free from petroleum-based products, this effective antistatic-ESD additive, enables the safely dissipation of electrostaticity and comfort on flooring systems.

**avanNATUR anti-dust**: delivers an effective electrostatic controlled discharge and thus prevents issues related to static electricity building up, both related to comfort and aesthetic issues such as dust adhesion. It is available for water-based solvent-based and epoxy-based paints and coatings.

+ tailor-made antistatic additives depending on materials and resistance requirements.

Antistatic additives for polyolefins

**avanSTATIC Polymer MB** is a line of polymeric masterbatches based on polyester resins, capable of producing permanent and colourable antistatic systems.

+ tailor-made antistatic additives for polyolefins depending on the host matrix particularities: MFI, conversion methods, production process requirements, etc.

For more information and TDS, please contact: sales@avanzare.es
avanzare is a well-known graphene and graphene/graphite nanoplatelets producer. This laminar material exhibits an incomparably lower percolation threshold to other alternative materials, and therefore lower dosages of it are required to achieve conductivity in the host polymer matrix. Thanks to its low-dosage requirements it has a minimal effect in the host resin properties.

For more information and TDS, please contact: sales@avanzare.es

<table>
<thead>
<tr>
<th>Graphene compound</th>
<th>Dosage % to percolation</th>
<th>Base plastic material</th>
<th>Conductivity (S/m)</th>
<th>Conversion method</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA6-avGRM 1 composite</td>
<td>1</td>
<td>PA-6</td>
<td>$10^{-2}$</td>
<td>Compression moulding</td>
</tr>
<tr>
<td>PA6-avGRM 1 composite</td>
<td>4</td>
<td>PA-6</td>
<td>$10^{-2}$</td>
<td>Extrusion</td>
</tr>
<tr>
<td>PA6-avGRM 1 composite</td>
<td>8</td>
<td>PA-6</td>
<td>$10^{-2}$</td>
<td>Injection</td>
</tr>
</tbody>
</table>