

avanzare[®]

Shoe market.



www.avanzarematerials.com

Antistatic/ESD additives, 6-7



Flame retardant/Fire resistant solutions, 8-9



Anti-bacterial additives, 10-11



Electrically & Magnetically detectable solutions, 14



Graphene, 4-5



Free residual of formamide



✓ RUBBER

✓ EVA

✓ PU

✓ TPU

✓ TR

✓ PVC

✓ ETC

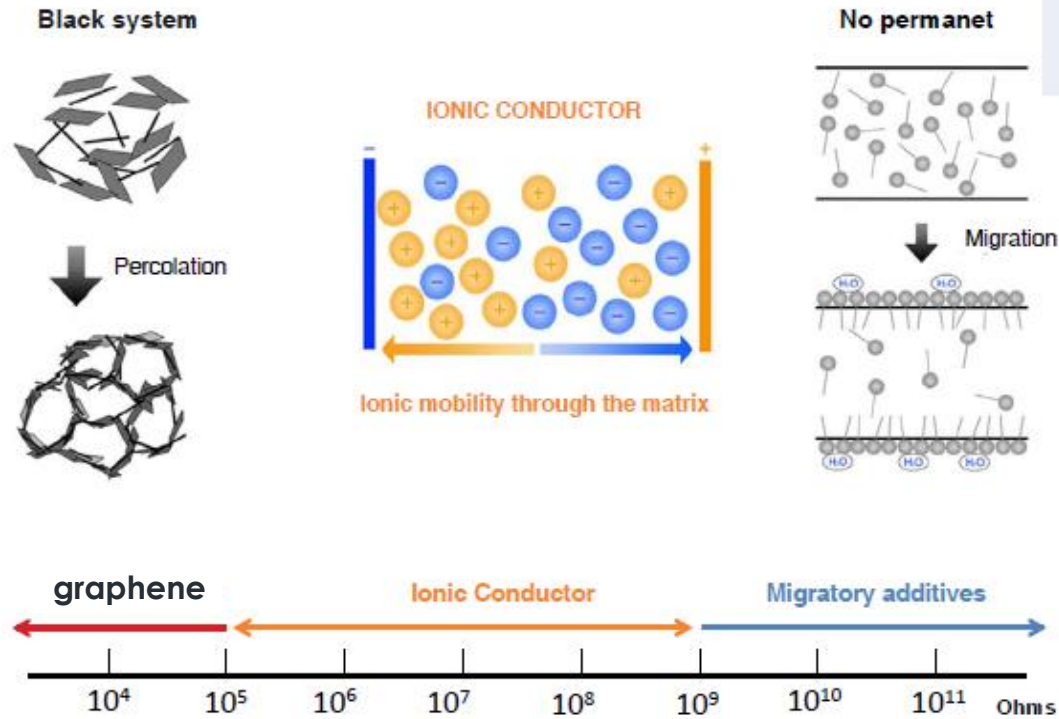
PRODUCTS FOR RUBBER

- ❑ ANTISTATIC AGENTS.
- ❑ FLAME RETARDANT.

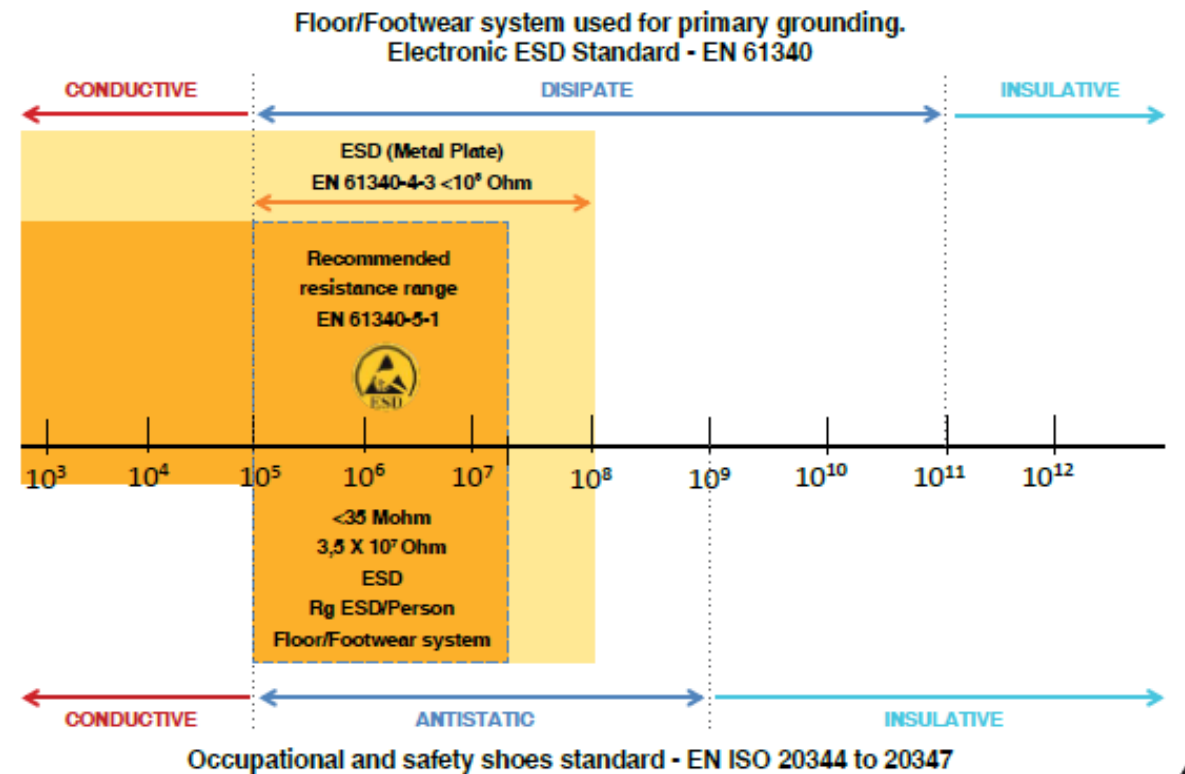
CONDUCTIVITY RANGE, A BIT OF THEORY

	Avanzare Graphene percolation	Avanzare Ionic Conductor	Migratory Additives
Colourable	NO/PARTIALLY	YES	YES
Permanent	YES	YES	NO
Humidity Dependent	NO	NO	YES
Resistance level Range	<10 ⁵ ohms	10 ⁵ to 10 ¹⁰ Ohms	10 ⁹ -10 ¹² Ohms

Mechanism to generate antistatic



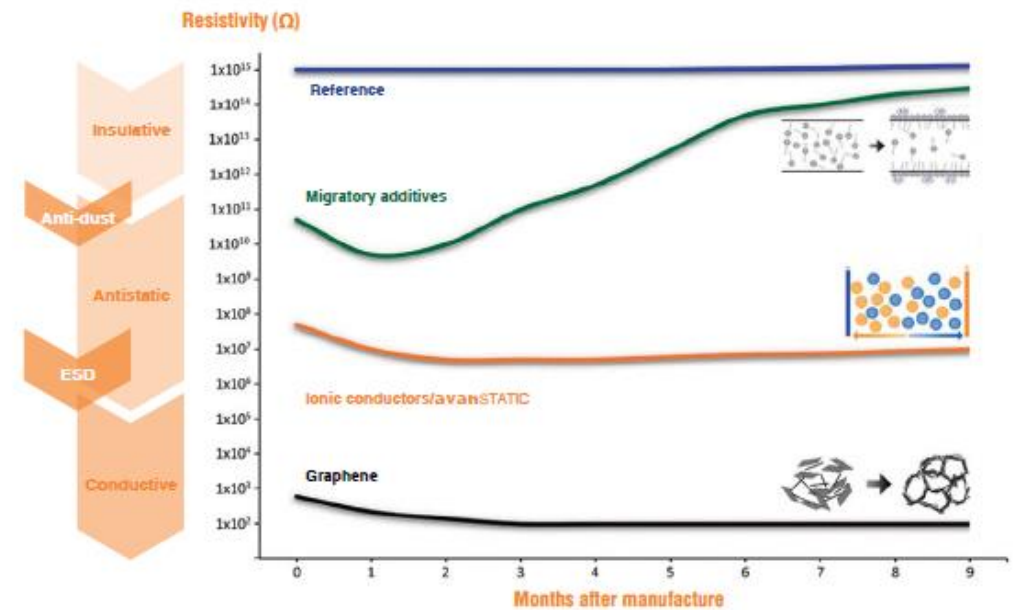
Ranges of conductivity



Main characteristics of **avanzare**'s antistatic additives.

- **Static dissipative and ESD levels permanent performance**
- **Colorless and colourable**
- **Low dosage required**
- **Cost-effective**
- **Minimal effect to host material properties**
- **Non-migratory**
- **Solid, liquid, pellet MB forms available depending on the product.**
- **Food grade in some applications**

Evolution of conductivity with the time



avanzare



- Products

- Antistatic (additive)
 - Application in NBR
 - Application in SBR
 - Application in EPDM
 - Application in NR
 - APPLICATION FOOD GRADE (FDA)



- Flame retardant for NBR



Different grades of antistatic additives for rubber.

	Type of rubber	Format	Dosage phr	Characteristic	Impact price
avan STATIC Rubber	NBR	Solid	2-6	Only UE	\$
avan STATIC Plast	NBR, SBR, CR, BR, CSM	Liquid	5-15	Plasticizer	\$\$\$
avan STATIC Plast Rub	NBR	Liquid	4-8	Plasticizer	\$\$
avan STATIC NBR 535	NBR	Liquid	4-8	Plasticizer	\$
avan STATIC SBR/EPDM	SBR, EPDM	Solid	7-14		\$
avan STATIC Rubber MB	NBR, SBR, NR, EPDM, etc...	MB in NBR	10-25		\$\$

PRODUCTS FOR EVA

- ❑ ANTISTATIC AGENTS.
- ❑ AVAN FREE FORMAMIDE

avanNatur EVASTAT (S)



- ❑ ADJUSTABLE ADDITIVE FOR ANTISTATIC/ESD.
- ❑ SPECIALLY FORMULATED FOR BANBURY PROCESSES.
 - ❑ RECOMMENDED TO ADD 18-26 PHR OF SILICA (150-180)
 - ❑ USE HIGH %VINYL ACETATE.
- ❑ 12 TO 25 PHR.
- ❑ SOLID. NO BLOOMING EFFECT.
- ❑ COLOURABLE AND COLOURED FORMULATIONS.
- ❑ NON-TOXIC.
- ❑ NON PETROLEUM DERIVATES.





avanNATUR EVASTAT 850

- ❑ ESD/ANTIESTATIC.
 - ❑ EXTRUSION.
 - ❑ BANBURY.
- ❑ 8 TO 13 PHR. NOT INCREASE THE DOSAGE.
- ❑ POWDER, EASY DISPERSION IN EXTRUSION.
- ❑ COLOURABLE AND COLOURED FORMULATIONS.
- ❑ PERMANENT. NO BLOOMING
- ❑ PERCOLATION.
- ❑ NON LARGE DETERIORATION IN PHISICAL PROPERTIES.

Vinyl Acetate content	EVASTAT 850 (phr)	Resistivity (MΩ)	Density (kg/m ³)
28	8	855	235
19	11	890	310
19 (not foam)	8	350	940



avanFREE FORMAMIDE

- ❑ REDUCING FORMAMIDE RESIDUES IN EVA FOAM.
- ❑ BAMBURY PROCESS.
- ❑ CATALITIC OXYDATION TO CO₂, WATER AND N₂.
- ❑ CHARACTERISTICS:
 - ❑ WHITE POWDER EASY TO DISPERSE.
 - ❑ NON-TOXIC.
 - ❑ COLOUR FORMULATION.
- ❑ DOSAGE BETWEEN 8 TO 15 PHR.
- ❑ ALLOWS TO GET LESS THAN 100 PPM OF FREE FORMAMIDE.

SAMPLE CODE		560-2020-00000732	
Order Code:	EUAA70-00005707		
Reception Date:	30-Jan-2020		
Analysis starting date:	3-Feb-2020		
Analysis ending date:	5-Feb-2020		
Sample described as:	Un trozo de goma A piece of rubber		
Information provided by the customer:			
Client reference:	EVA FREE A		
Purchase Order Number:			
Customer requirements:			
Description:			
CHEMICAL TESTS	RESULTS	LOQ	
YLK1T Formamide	94	50	Analysis ending date: 05/02/2020
Formamide	mg/kg		

PRODUCTS FOR PU / TPU

- ❑ ANTISTATIC AGENTS.
- ❑ AVANTIPOLISH (ANTI BURR)



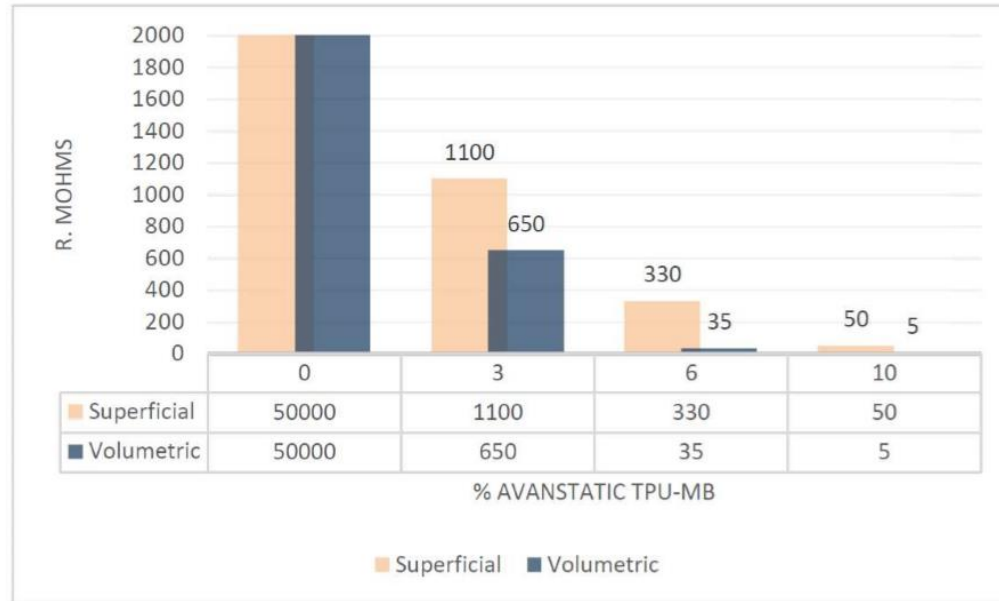
AVANION 39

- BASED ON A COMPLEX DISPERSIÓN OF IONIC CONDUCTORS IN POLYGLYCOLS.
- COLOURED FORMULATIONS.
- DOESN'T ALTER ORIGINAL MATERIAL MECHANICAL PROPERTIES
- TYPICAL DOSAGE:
 - TO ACHIEVE LESS THAN 100 MOHMS → 1.25% OVER POLYOL.
 - TO ACHIEVE LESS THAN 35 MOHMS → 2,50 % OVER POLYOL.
- POLYESTER AN POLYETHER SYSTEMS.
- HYDROXYL CONTENT → 790 MG KOH/G IN CASE TO ADD MORE THAN 3.5% IS NECESSARY TO ADJUST ISO/POL RATIO.
- DOESN'T AFFECT TO THE HYDROLYSIS TEST.



AVANSTATIC TPU MB.

20344 to 20347 (occupational and safety shoes).



- MB READY TO USE.
- BASED ON FUNCTIONALIZED SiO_2 WITH IONIC CONDUCTORS.
- COLOURED FORMULATIONS.
- DOESN'T ALTER ORIGINAL MATERIAL MECHANICAL PROPERTIES
- TYPICAL DOSAGE:
 - TO ACHIEVE LESS THAN 1000 MOHMS → 4 - 6%.
 - DOSAGE 1.5 TO 15%.



AVANTIPOLISH

- MASTERBATCH READY TO USE.
- POWERFUL ANTI-ABRASION/ANTI-BURR FOR TPU.
- PREVENTS THE APPEARANCE OF BURRS IN THE MILLING/SANDING PROCESS.
- SPECIALLY INDICATED FOR TPU WITH LESS HARDNESS THAN 85 SHOREA.
- DOSAGE BETWEEN 4 TO 8%





BIOCIDE



AvanZnO BAC is a powerful anti-microbial agent, specially formulated to be introduced in plastics, rubbers and resins matrices.



AvanZnO BAC is based on the used of ZnO functionalized particles together with Zn pyrithione an/or pyrithione-2-tiol 1-oxide sodium salt.



According to the European directive n° 1048/2005 (13/June/2005) and directive (CE) n° 528/2012 regulating the applications of biocides in the industry.



The product is certificated to be used in plastics and resins with bactericide, against fungi and algae capability since more than a decade.



Some scientific studies have observed a large efficiency against RNA virus (coronavirus, herpes, picornavirus,...)



*** 1) DOI: 10.1002/JMV.25707 JOURNAL MEDICAL VIROLOGY, POTENTIAL INTERVENTIONS FOR NOVEL CORONAVIRUS IN CHINA : A SYSTEMATIC REVIEW LEI ZHANG ET ALL.

2) JOURNAL OF VIROLOGY JAN 2009 P-58-64 ANTIVIRAL ACTIVITY OF THE ZINC IONOPHORES PYRITHIONE AND HINOKITOL AGINST PICORNAVIRUS INFECTIONS B.M KRENN ET ALL.

3) ANTIVIRAL RESEARCH 100 (2013) 44-53, ZINC IONOPHORES PYRITHIONE INHIBITS HERPES SIMPLEX VIRUS REPLICATION THROUGH INTERFERING WITH PROTEASOME FUNCTION AND NF-KB ACTIVATION , MIN QUI ET ALL.

4) PLOS PATHOGENS NOVEMBER 2010 VOLUMEN 6 ISSUE 11, E1001176, ZN2+ INHIBITS CORONAVIRUS AND ARTERIVIRUS RNA POLYMERASE ACTIVITY IN VITRO AND ZINC IONOPHORES BLOCK THE REPLICATION OF THESE VIRUSES IN CELL CULTURE. AARTJAN J.W TE VELTHUIS ET ALL.



AVANZNO BAC HAS BEEN TESTED AGAINST:



Bacteria	Fungi	Algae
Escherichia coli	Aspergillus niger	Cladosporium
Staphylococcus aureus	Aureobasidium pullulans	cladosporioides
Streptococcus faecalis	Chaetomium globosum	Sclerophoma pityophila
Klebsiella pneumoniae	Alternaria alternata	Trichoderma viride
Pseudomonas	Penicillium brevicaulis	Chlorella pyrenoidosa
aeruginosa	Cladosporium	
Salmonella typhimurium	cladosporioides	
	Sclerophoma pityophila	
	Trichoderma viride	

□ Technical capabilities (ESD lab)

- ✓ 3.500 m² of full equiped lab (950 m² division ESD/antistatic)
- ✓ 12 Chemistry PhD. (3 PhD division ESD/antistatic)
- ✓ European accredited lab for testing customer trials
- ✓ Customized solution (recipes adjust)

**Avanzare's Lab
ready to help you**

□ Equipment and facilities

- ✓ Polymer pilot plant, Extrusion machines (singles and twin screw), banbury mixer, Injection samples
- ✓ R&D polymer lab (extrusion machine, injection, MFI analysis, FTIR, X-ray, QUV, Xenon, UV-absorption, EDAX, RAMAN, SEM etc)
- ✓ R&D filament extrusion for 3-D
- ✓ Conductivity/resistance characterization instruments. (1 Ohms- 1¹³ Ohms)

