Reference: Carbon Coating

CONDUCTIVE COATINGS PRODUCED BY MONOLAYER DEPOSITION ON SURFACES

Coating technology enables them to achieve conductivity onto complex plastic surfaces ranging from films, or fibers to porous sponges.

TYPE OF DEVELOPMENT

Conductive coatings

DESCRIPTION

The methodology consists of introducing the complex surface to be coated into a graphene/ nanographite suspension with a suitable solvent. The election of a suitable solvent might depend on the specific plastic to be coated. Upon immersion ultrasounds are applied and after a certain time the plastic surface molecules intertwin with the graphene in solution generating an outer coating with enhanced electrical conduction. Application of pressure (either hydraulic or mechanic) after this treatment does even increase the conduction to a further extent. Additional functionalization of these surfaces might be achieved by electrochemical depositions.

INDICATION

Catalysis, by providing electrochemical grounding to electrically catalyzed reactions.

- Sensing, by providing electron conduction an enabling sensing by suitable engineering.

- Electronics, by generating conducting paths within complex surfaces either by masking or by other means.

- Electromagnetic shielding, to avoid circuits from being affected by electromagnetic radiation.

NOVELTY/ADVANTAGE

The invention involves a low resistivity coating made of exfoliated graphene and nano-graphite on electrically insulating fibers or complex surfaces. This coating consists of pulverized graphite platelets, sized between 0.1 to 500 microns, applied to the outer surface, with a typical weight fraction of 0.01% to 1.0%. The high concentration of graphene at the surface enhances electrical conduction and allows for additional functionalization through electrochemical deposition.

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COOPERATION GOAL

License agreement.