

Direct graphene dispersion transfer into resins and polymers: accelerating the industrial perspectives of nanoaugmented materials

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Coating and composite manufacturing are among the main applications of graphene. They contribute to more than a third of the total revenues within the industry. Recently, graphene has been successfully applied as an additive to various industrial products for surface treatments. The addition of graphene has been shown to enhance the anti-corrosion property and electrical conductivity. However, there are major challenges to the new application of graphene as such (1) the limited selection of the form of graphene, (2) the homogeneity of graphene dispersion, and (3) the compliance to the processes applied by the end-user.

At Carbon Waters, we developed a beautifully simple mechanism to transfer our high-quality FLG graphene dispersion into a broad variety of formulations. We provide water and organic-based graphene dispersions with a high level of purity and stability as well as graphene-doped masterbatches. Our products strive to conduct a high-level barrier and thermal management properties even at very low concentration.

This technological breakthrough allows a very fast (few minutes), highly effective (no agglomerates) graphene-doped formulations production without any expensive process investments for the customers. We are now working with industrial end-users as well as paint and composite manufacturers to develop strategic applications in aeronautics, space, wind turbines, photovoltaics, and marine coatings and formulations.

Figures



Figure 1: graphene-doped formulations (Epoxy-based, Polyurethane-based & organic oils).



Figure 2: Lab-scale reactor for the production of graphene-doped Epoxy resin concentrates (Masterbatch)
