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**Influence of dispersant on the morphological and physico-chemical characteristics
of sprayed graphene oxide-based coatings**

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Abstract

The dispersion characteristics of graphene oxide (GO) platelets in various liquid dispersants, as well as the effect of these dispersants on the final morphological and physico-chemical properties of graphene oxide-based thin films are examined. The Hansen Solubility Parameters (HSP) model is used for ranking the dispersants and a comparison between the resulting mean GO platelet sizes is made using dynamic light scattering measurements. Contact angle measurements, scanning electron microscopy (SEM), atomic force microscopy (AFM), Raman spectroscopy, and X-ray photoelectron spectroscopy (XPS) are employed to characterize the GO and reduced graphene oxide (rGO) thin films produced from each dispersant. Water, a frequently used GO dispersant, is not found to be among those that produced the highest GO surface coverages. The results of this paper demonstrate the subtle and broad influence of the variables involved in the translation from dispersed GO to graphene-based thin films.

Keywords

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