

Graphene in polymers: dispersion and properties

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Abstract

Dispersion of nanoparticles in polymers has a real impact on their mechanical properties and on the percolation threshold needed in order to obtain electrical conductivity [1]. Therefore several dispersion methods have been investigated and can be found in the literature [2].

Carbon Waters was founded on a ground-breaking innovative graphene production process. This process leads to already dispersed graphene, Graph'Up, that can be transferred into several matrices, such as polymers, which gives ready to use graphene pre-mixes for many applications (packaging, coating, composites, adhesives ...).

The works done at Carbon Waters on the incorporation of Graph'Up into several types of polymers, thermosets and thermoplastics, will be presented [Fig. 1]. For thermoset resins, Graph'Up has shown improvements on the thermal and mechanical properties of polymers even at very low concentrations. For thermoplastics, barrier effect as well as thermal properties and mechanical properties are key properties, which are improved when doped with Graph'Up.

References

- [1] L.-C. Tang, Y.-J. Wan, D. Yan, Y.-B. Pei, L. Zhao, Y.-B. Li, L.-B. Wu, J.-X. Jiang, G.-Q. Lai, *Carbon*, 60 (2013) 16-27.
 - [2] A. Liang, X. Jiang, X. Hong, Y. Jiang, Z. Shao, D. Zhu, *Coatings*, 8 (2018) 33.
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Figures

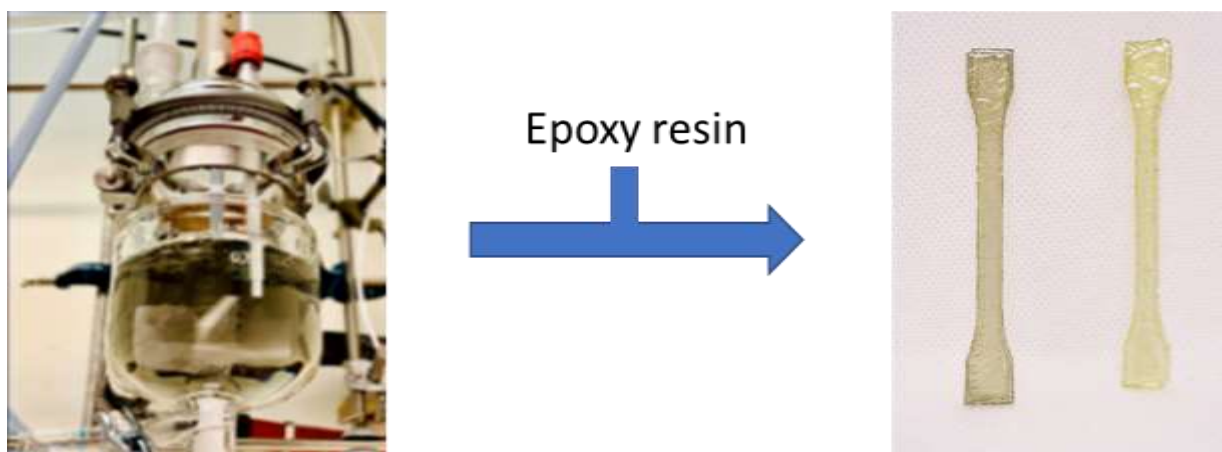


Figure 1: Illustration of the incorporation of Graph'Up in an epoxy resin.