

## MULTIFUNCTIONAL FOAMS MADE OF POLYMER NANOCOMPOSITES

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A highly topical subject in materials considers the development of multifunctional foamed plastics by combining density reduction with a rational incorporation of nanosized functional fillers. This is the case of carbon nanofillers such as carbon nanotubes, nanofibres or graphene. Alongside the use of these as reinforcement in polymer nanocomposites, they enable to regulate some transport properties, as thermal and electrical conductivities. As it has been shown, these may display significant property enhancements at lower loadings compared to conventional composites. In the present communication we show that the use of carbon nanosubstrates in the foam polymer composition led to lightweight materials with high specific mechanical properties and improved electrical conduction than the respective solid composites.

This work covers our most recent results regarding the preparation and characterization of both polypropylene and polycarbonate nanocomposites-based foams prepared by means of both physical and chemical foaming techniques.