

Physico-chemical properties of PEG-based inorganic hybrids obtained via sol-gel

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Abstract.

Organic-inorganic composites can be conveniently obtained by sol-gel recipes as class-I or class-II hybrids. They can find interesting applications in several fields, including drug delivery, scaffolding, bio-sensing, energetics, etc. In this paper we reconsider and reinvestigate our previous work in the field, by considering the sol-gel synthesis and physico-chemical characterization of class-I hybrids, and by trying to highlight some unifying elements that can be of help for the development of more efficient and precise synthesis methods. In particular, we will discuss systems based on poly(ethylene glycol) with SiO₂⁽¹⁾ and ZrO₂⁽²⁾ as the ceramic phase. Emphasis will be put on the role played by solid-state NMR spectroscopy in unveiling the interactions at the base of hybrid formation.

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