

Functionalization of siloxane derivatives by attaching polar groups

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Methyl-substituted disiloxanes as well as oligomeric siloxanes with their intrinsic characteristics (high flexibility and hydrophobicity conferred by Si-O bond particularity and presence of methyl groups attached to silicon atoms, respectively) are effective platforms for modification of the active sites to obtain compounds with unusual properties. Both linear and cyclic siloxane derivatives were used as substrates for attaching polar moieties (i.e., triazole or carboxylic groups) on the silicon atom resulting a series of original compounds with added value, two examples being showed in Figure 1.

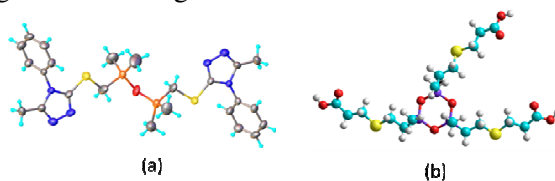


Figure 1. Tetramethyldisiloxane end-functionalized with triazole cycles (a) and hexamethylcyclotrisiloxane functionalized with carboxyl groups (b), both functions being attached to the siloxane substrate by thioether bridge

In all cases, proper mercapto-derivatives were used as polar group providers and either alkylation or thiol-ene addition as chemical routes. The reaction conditions are established for each pair of reactants.

The obtained products were structurally characterized by spectral (IR and NMR) an elemental analysis and X-ray single crystal diffraction, where appropriate. Properties of the compounds were investigated, some of them showing good biological activity, metal complexing ability and ionic conductivity, in the last cases the compounds being of interest as liquid electrolyte for Li batteries.

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