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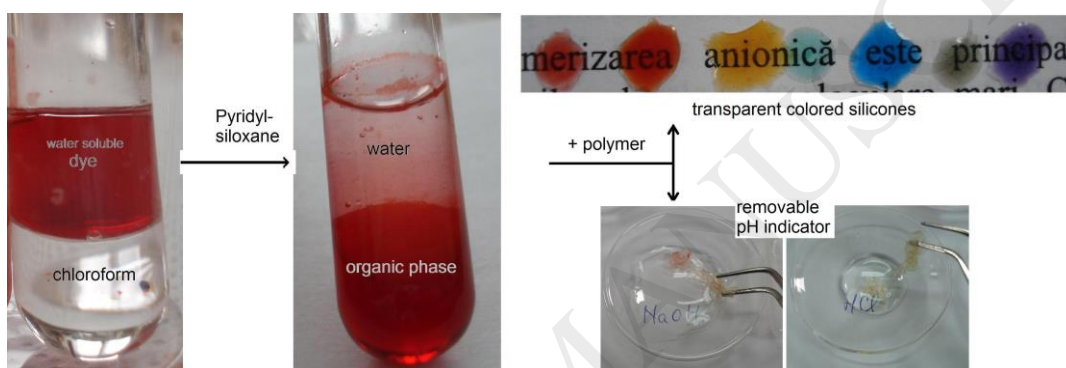
MULTI-TASKING PYRIDYL-FUNCTIONALIZED SILOXANES

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Graphical abstract



Abstract

Pyridyl functionalized siloxanes with various architectures were synthesized by addition of 4-amino-pyridine to epoxy-siloxanes. The polysiloxane precursors were prepared *in house* by combining ROP with hydrosilylation. Depending on the ratio between siloxane and polar functional groups, the pyridyl-modified compounds may be soluble in water, in organic solvents or both, exhibiting self assembling ability and particle stabilizing effect. Due to pyridyl groups, they act as ligands for 3d and 4f block metals. A particularly interesting application is concerned to their ability to transfer organic and inorganic molecules from water to the organic phase. This behavior was tested for silver clusters and for water soluble dyes and pH indicators. A possible end-use is foreseen for transparent colored polymers or removable/reusable pH indicators. The properties of the pyridyl-siloxanes can be tuned by synthesis. Thus, a lower content in siloxane groups leads to surface activity in water, while a higher amount of siloxane gives better phase transfer ability.

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