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## Novel kaolin/polysiloxane based organic-inorganic hybrid materials: sol-gel synthesis, characterization and photocatalytic properties

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### Abstract

New hybrid materials using kaolin and the organosilicas methyl-polysiloxane (MK), methyl-phenyl-polysiloxane (H44), tetraethyl-ortho-silicate (TEOS) and 3-amino-propyl-triethoxysilane (APTES) were obtained by sol-gel process. These materials presented specific surfaces areas ( $S_{\text{BET}}$ ) in the range of 20-530  $\text{m}^2 \text{g}^{-1}$ . Scanning electron microscopy (SEM) and transmission electron microscopy (TEM) showed remarkable differences between the kaolin and hybrid structures. Thermogravimetric analysis (TGA) revealed that the hybrid materials presented higher thermal stability when compared with their precursors. The electronic properties of the materials were also studied by Ultraviolet-Visible Diffuse Reflectance Absorption (DRUV) and Diffuse

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