

Abstract Preview of 'CSC-bliard' (H4DLO1)

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Synthesis of New Hybrid Mineral / Renewable Sol-Gel Matrices by Inter-Cross-Linking Siloxane Based Polymers with Polysaccharides. C. Bliard[§] <*christophe.bliard@univ-reims.fr*>, CNRS-ICMR, UMR6229, B18, URCA, B.P. 1029, Moulin de La Housse, F51687, Reims, France; A.J. Vreugdenhil <*avreugdenhil@trentu.ca*>, Trent Centre for Materials Research, Chemistry, Trent University, 1600 West Bank Dr. Peterborough, ON

Silicon based sol-gels are polymeric matrices that have a wide range of applications from high porosity to corrosion protection coatings. Our research has specialized in the synthesis of a variety of sol gel matrices using binary or ternary combinations of alkylalkoxysilanes. Depending on the starting silane, these colloids are crosslinked in a number of ways, to produce materials with unique, innovative and potentially valuable properties. In our group at Reims University we have developed several unique processes for polysaccharide modification and cross-linking leading to hydrogels and materials possessing innovative properties, such as renewable and biodegradable materials from amylaceous polysaccharides. In the present work we present the synthesis of hybrid materials composed of a dual synthetic and renewable - siloxane / polysaccharidic base by inter-crosslinking the two polymeric networks in aqueous solution. The advantage of crosslinkable sol-gel hybrid matrices over traditional sol-gel chemistry methods are primarily the ability to avoid using high temperature processing to solidify the material, the opportunity to incorporate useful organic functionality into the final matrix, improved mechanical strength and potential partial biodegradability.

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