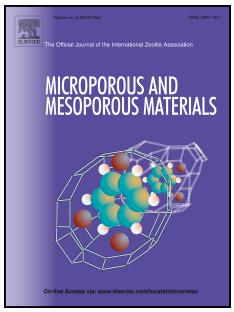
Accepted Manuscript



Influence of network modifiers in an acetate based sol-gel bioactive glass system

Delihta Fernando, Nina Attik, Mark Cresswell, Ilham Mokbel, Nelly Pradelle, Phil Jackson, Brigitte Grosgogeat, Pierre Colon

PII: S1387-1811(17)30565-6

DOI: 10.1016/j.micromeso.2017.08.029

Reference: MICMAT 8516

To appear in: *Microporous and Mesoporous Materials*

Received Date: 28 June 2017

Revised Date: 4 August 2017

Accepted Date: 16 August 2017

Please cite this article as: D. Fernando, N. Attik, M. Cresswell, I. Mokbel, N. Pradelle, P. Jackson, B. Grosgogeat, P. Colon, Influence of network modifiers in an acetate based sol-gel bioactive glass system, *Microporous and Mesoporous Materials* (2017), doi: 10.1016/j.micromeso.2017.08.029.

Statement of significance

Bioactive glasses are well known for their application in the field of bone tissue engineering and restorative dentistry. One of the issues of sol-gel bioglass is the final inhomogeneity in the glass composition as there is a struggle to incorporate the network modifiers (especially calcium) into the glass network. We used acetate precursors instead of nitrates to incorporate the network modifiers (CaO/Na_2O) and mainly studied their influence on the glass structure and texture. In our system a part of the calcium enters into the network at lower temperatures than the existing nitrate systems. Furthermore, the porosity is driven with increasing CaO in the composition. These highly porous and non-toxic acetate systems are promising to be used in medical applications such as bioactive fillers in dental adhesives.