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

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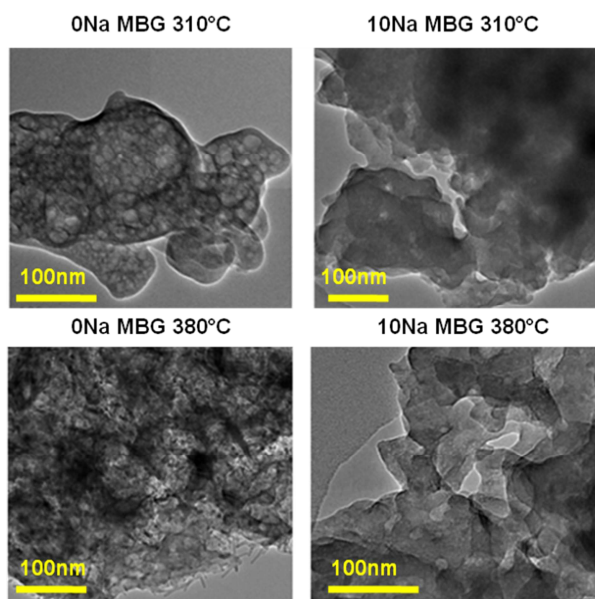
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## Statement of significance

ACCEPTED MANUSCRIPT

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 ( $\text{CaO}/\text{Na}_2\text{O}$ ) 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  $\text{CaO}$  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.



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