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Water dynamics in glass ionomer cements

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Glass ionomer cements (GIC) are an alternative for preventive dentistry. However, these dental cements are complex systems where important motions related to the different states of the hydrogen atoms evolve in a confined porous structure. In this analysis, we studied the water dynamics of two different liquids used to prepare either conventional or resin-modified glass ionomer cement. By combining thermal analysis with backscattering data from IN10 at ILL we were able to relate the water structure in the liquids to the materials properties.
The analysis shows that the distinct dynamics of the liquids used in preparation of the GIC influence and to a certain extend control hydrogen binding to the GIC structure.

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