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Stimuli responsive ion gels based on polysaccharides and other polymers prepared using ionic liquids and deep eutectic solvents

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Highlights

- Stimuli responsive ion gels in ionic liquids/deep eutectic solvents are discussed
- Seaweed polysaccharides, gum based polysaccharides and DNA are covered.
- The pH responsive behaviour of a polymerizable IL based nanogel is also discussed.

Abstract: Ion gels and self-healing gels prepared using ionic liquids (ILs) and deep eutectic solvents (DESs) have been largely investigated in the past years due to their remarkable applications in different research areas. Herewith we provide an overview on the ILs and DESs used for the preparation of ion gels, highlight the preparation and physicochemical characteristics of stimuli responsive gel materials based on co-polymers and biopolymers, with special emphasis on polysaccharides and discuss their applications. Overall, this review summarizes the fundamentals and advances in ion gels with switchable properties prepared using ILs or DESs, as well as their potential applications in electrochemistry, in sensing devices and as drug delivery vehicles.

Keywords: Ion gel; ionic liquid; deep eutectic solvent; polysaccharides; biopolymer; co-polymer; stimuli responsive

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