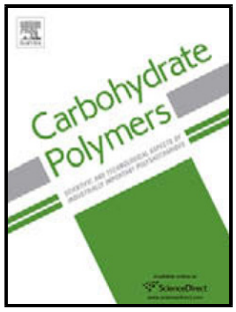

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Controlling alginate oxidation conditions for making alginate-gelatin hydrogels

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Highlights

- Oxidized alginate properties can affect the state of alginate-gelatin mixtures.
- Alginate-gelatin hydrogel is controlled by the aldehyde groups at the alginate chain ends.
- The phase diagram for sol-gel state of alginate-gelatin mixtures is suggested.
- Having oxidized alginate with Mw of less than 40 Kg/mol is necessary to form hydrogel.

Abstract

In the present work, we discuss how oxidation conditions can affect the physical properties of oxidized alginate and crosslinking it with gelatin. We show that the amount of aldehyde groups produced on oxidized alginate backbone increases by increasing alginate concentration even in constant molar ratio of sodium periodate to alginate's repeating units. Increasing the concentration of alginate solution, promote the extent of chain scission and decreases the molecular weight of oxidized alginate, which can be due to the increased possibility of molecular