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(54) Title: MICROBIALLY INDUCED GELATION FOR REDUCTION OF PERMEABILITY OF GRANULAR MATERIALS

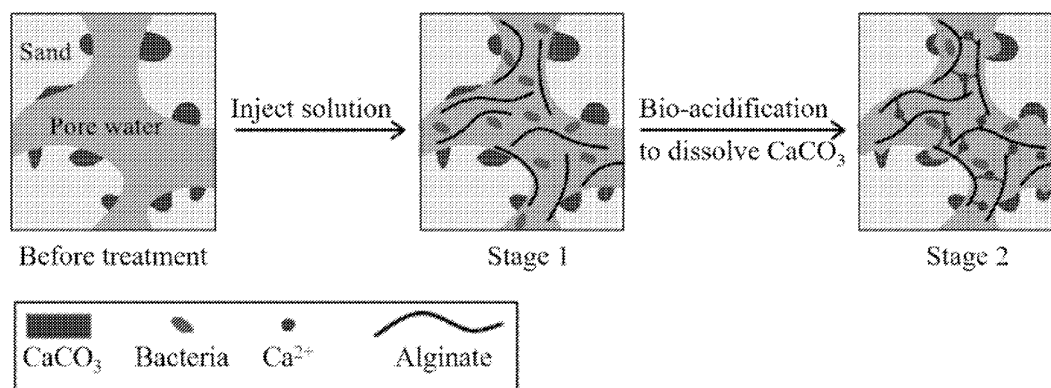


FIG. 2

(57) **Abstract:** Disclosed herein is a process of forming an organic barrier layer in a porous material in need thereof, the process comprising the steps of: (a) providing a porous material in need thereof and a bio-gelation mixture, the bio-gelation mixture comprising: water; a polysaccharide suitable for crosslinking; glucose; and a bacterial population suitable for converting glucose to a carboxylic acid; and (b) injecting the bio-gelation mixture into; or spraying the bio-gelation mixture onto a surface of the porous material to form an organic barrier layer comprising the polysaccharide crosslinked by a plurality of calcium ions, wherein the plurality of calcium ions are obtained from reaction of the carboxylic acid with a calcium ion source, where the calcium ion source is present in the porous material and/or is added as an additional component within the bio-gelation mixture.

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