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(54) Title: POLYMERIZATION PROCESS AND MATERIALS FOR BIOMEDICAL APPLICATIONS

(57) Abstract: A molded component or article for biomedical use is prepared from a crosslinkable non-water-soluble polymer which when crosslinked and saturated with water forms a hydrogel. The polymer is formulated as a composition containing a non-aqueous diluent in addition to the polymer, the diluent being present in a volumetric proportion that is substantially equal to the volumetric proportion of water in the hydrogel that would be formed when the polymer is crosslinked and saturated with water. The composition is cast in a mold where the composition is exposed to conditions that cause crosslinking to occur by a reaction to which the non-aqueous diluent is inert. The crosslinking reaction produces a molded non-aqueous gel which is then converted to a hydrogel by substituting an aqueous liquid such as water or physiological saline for the non-aqueous diluent. The use of a molding composition whose curing consists essentially entirely of crosslinking results in a molding process that entails little or no shrinkage, and dimensional integrity is maintained up through the formation of the hydrogel by using the non-aqueous diluent in essentially the same volumetric proportion as water in the hydrogel.



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