Semi continuous operational method for producing copolymers

Abstract:

The invention relates to a process for the preparation of a copolymer in a semicontinuous mode of operation in a polymerization apparatus containing a polymerization reactor connected to a metering device, in each case acid monomer being initially introduced into the metering device and polyether macromonomer and water into the polymerization reactor, acid monomer being metered from the metering device into the polymerization reactor, free radical polymerization initiator being passed into the polymerization reactor before and/or during the metering of the acid monomer into the polymerization reactor, so that an aqueous medium forms in the polymerization reactor, in which aqueous medium acid monomer and polyether macromonomer are reacted by free radical polymerization with formation of the copolymer, at least 70 mol% of the polyether macromonomer initially introduced into the polymerization reactor being converted by the free radical polymerization, the conversion of the acid monomer giving rise in the copolymer to an acid structural unit which reduces the pH of the aqueous medium to a lesser extent than the acid monomer as such, the metering of the acid monomer into the polymerization reactor being effected in such a way that first a polymerization pH is established in the aqueous medium and then, until the conversion of 70 mol% of the polyether macromonomer initially introduced into the polymerization reactor, acid monomer is passed into the polymerization reactor in an amount per unit time such that the pH in the aqueous medium deviates by not more than ± 0.3 from the initially established polymerization pH.