

Title (en)
HYDROLYTICALLY DECOMPOSABLE IONIC COPOLYMERS

Title (de)
HYDROLYTISCH ABBAUBARE IONISCHE COPOLYMERISATE

Title (fr)
COPOLYMÈRES IONIQUES DÉGRADABLES DE MANIÈRE HYDROLYTIQUE

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Abstract (en)
[origin: WO2009127600A1] The present invention provides novel hydrolytically decomposable ionic copolymers. These ionic copolymers are made up of a cyclic ketene acetal A, an anionic or cationic methacrylic acid derivative B selected from 2-methyl-methacrylate, [2-(2-methyl-1-methylen-allyloxy)-ethane sulfonate, [2-(2-methyl-1-methylen-allyloxy)ethyl]-phosphonate or a quaternary amine of N,N-dimethylaminoethylmethacrylic acid (DMAEMA) and optionally a neutral methacrylic acid derivative C. According to the invention, hydrolytically decomposable ionic copolymers are produced by polymerizing the components A, B and C in the presence of a radical starter under a protective gas atmosphere, followed by purification. All copolymers according to the invention are hydrolytically decomposable. Copolymers containing a maximum of 40 mol-% of ester groupings in the backbone are also biodegradable, wherein in the case of cationic copolymers a maximum of 20 mol-% quaternized DMAEMA may be present. Cationic copolymers containing at least 50 mol-% of component B are antimicrobial. Both anionic as well as cationic copolymers are suitable for the production of nanoparticles. Cationic copolymers can be used as superhydrophobic materials as well as adhesives. Anionic copolymers are suitable as biodegradable thermoplastic elastomers and as biodegradable ionomers.

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