Title (en)

HYDROLYTICALLY DECOMPOSABLE IONIC COPOLYMERS

Title (de)

HYDROLYTISCH ABBAUBARE IONISCHE COPOLYMERISATE

Title (fr)

COPOLYMÈRES IONIQUES DÉGRADABLES DE MANIÈRE HYDROLYTIQUE

Publication

EP 2265648 A1 20101229 (DE)

Application

EP 09733031 A 20090409

Priority

- EP 2009054318 W 20090409
- DE 102008018905 A 20080414
- DE 102008028146 A 20080614

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 a superhydrophobic materials as well as adhesives. Anionic copolymers are suitable as biodegradable thermoplastic elastomers and as biodegradable ionomers.

IPC 8 full level

C08F 8/44 (2006.01); **C08F 216/38** (2006.01); **C08F 220/34** (2006.01)

CPC (source: EP US)

C08F 8/44 (2013.01 - EP US); **C08F 220/34** (2013.01 - EP US); **C08L 101/16** (2013.01 - EP US); C08F 216/38 (2013.01 - EP US); C08F 220/14 (2013.01 - EP US); C08F 2800/10 (2013.01 - EP US)

Citation (search report)

See references of WO 2009127600A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

WO 2009127600 A1 20091022; EP 2265648 A1 20101229; US 2011160426 A1 20110630; US 9068065 B2 20150630

DOCDB simple family (application)

EP 2009054318 W 20090409; EP 09733031 A 20090409; US 93763109 A 20090409