

Title (en)

CLEANING FORMULATIONS FOR MACHINE DISHWASHING COMPRISING HYDROPHILICALLY MODIFIED POLYCARBOXYLATES

Title (de)

REINIGUNGSFORMULIERUNGEN FÜR DIE MASCHINELLE GESCHIRRREINIGUNG ENTHALTEND HYDROPHIL MODIFIZIERTE POLYCARBOXYLATE

Title (fr)

PREPARATIONS DETERGENTES POUR LAVAGE EN LAVE-VAISSELLE CONTENANT DES POLYCARBOXYLATES A MODIFICATION HYDROPHILE

Publication

EP 1924675 B1 20101110 (DE)

Application

EP 06778368 A 20060828

Priority

- EP 2006065711 W 20060828
- DE 102005041347 A 20050831

Abstract (en)

[origin: DE102005041347A1] Cleaning formulation free of phosphate for dishwasher comprises: copolymer (1-20 wt.%); chelating agent (1-50 wt.%); weakly foaming non-ionic surfactant (1-15 wt.%); bleaching agent and optionally bleach activator (0-30 wt.%); further builder (0-60 wt.%); enzyme (0-8 wt.%); and one or more further additives. The copolymer comprises acrylic acid, methacrylic acid and/or alkyl-terminated polyalkylene glycol (meth)acrylate. Cleaning formulation free of phosphate for dishwasher comprises: copolymer (1-20 wt.%) from acrylic acid and/or a water-soluble salt of the acrylic acid (50-93 mol.%), methacrylic acid and/or a water soluble salt of methacrylic acid (5-30 mol.%) or at least one non-ionic monomer (I) of formula (H 2C=C(R 1>)-COO-R 2>-[R 3>-O] n-R 4>) (2-20 mol.%); chelating agent (1-50 wt.%) such as glycine-N,N-diacetic acid derivative, glutamic acid-N,N-diacetic acid and/or its salt; weakly foaming non-ionic surfactant (1-15 wt.%); bleaching agent and optionally bleach activator (0-30 wt.%); further builder (0-60 wt.%); enzyme (0-8 wt.%); and one or more further additives such as anionic or zwitterionic surfactant, bleaching catalyst, alkali carrier, corrosion inhibitor, antifoaming agent, dye, aroma material, filler, organic solvent and water (0-50 wt.%). R 1>H or methyl; R 2>a bond or 1-6C alkylene; R 3>2-4C alkylene; R 4>1-6C alkyl; and n : 3-50. Independent claims are included for: (1) a powder- or granulate mixture useful in cleaning formulation for dishwasher, comprising copolymer (10-95 wt.%), chelating agent (5-80 wt.%) and polyethylene glycol and/or non-ionic surfactant; and (2) use of a combination of copolymer and chelating agent, as a coating inhibitor in addition with cleaning formulation for the dish cleaning machine.

IPC 8 full level

C11D 3/33 (2006.01); **C11D 3/37** (2006.01)

CPC (source: EP KR US)

C11D 3/33 (2013.01 - EP KR US); **C11D 3/37** (2013.01 - KR); **C11D 3/3757** (2013.01 - EP US)

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

DE 102005041347 A1 20070301; AT E487783 T1 20101115; BR PI0614939 A2 20130101; CA 2620240 A1 20070308; CA 2620240 C 20140401; CN 101253257 A 20080827; DE 502006008293 D1 20101223; EP 1924675 A1 20080528; EP 1924675 B1 20101110; EP 1924675 B2 20150729; ES 2355523 T3 20110328; ES 2355523 T5 20150921; JP 2009506183 A 20090212; KR 101363153 B1 20140213; KR 20080041217 A 20080509; US 2010160203 A1 20100624; US 2012122748 A1 20120517; US 8193139 B2 20120605; US 8440601 B2 20130514; WO 2007025944 A1 20070308

DOCDB simple family (application)

DE 102005041347 A 20050831; AT 06778368 T 20060828; BR PI0614939 A 20060828; CA 2620240 A 20060828; CN 200680031807 A 20060828; DE 502006008293 T 20060828; EP 06778368 A 20060828; EP 2006065711 W 20060828; ES 06778368 T 20060828; JP 2008528492 A 20060828; KR 20087004328 A 20060828; US 201113325446 A 20111214; US 6303606 A 20060828