

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 B2 20150729 (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.

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Citation (opposition)  
Opponent :  
• JP H1046193 A 19980217 - KAO CORP  
• US 5786313 A 19980728 - SCHNEIDER JUERGEN [DE], et al  
• CA 2258218 A1 19971231 - BENCKISER NV [NL]

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