

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

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Application

EP 06793039 A 20060829

Priority

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- DE 102005041349 A 20050831

Abstract (en)

[origin: DE102005041349A1] Phosphate-free cleaning formulation for dishwasher, comprises: (a) copolymers from monoethylenic unsaturated monocarboxylic acids; (b) a complexing agent from e.g. nitrilotriacetic acid; (C) weak foaming nonionic surfactant, (D) a bleaching agent and optionally a bleach activator; (e) a further builder; (f) enzyme; and (g) a further additives e.g. anionic or zwitterionic surfactant and bleaching catalyst. Phosphate-free cleaning formulation for dishwasher, comprises: (a) 1-20 wt.% of copolymers from (a1) 50-99.5 mol.% of a monoethylenic unsaturated monocarboxylic acid and/or its salt, (a2) 0.5-20 mol.% of an alkoxyated monoethylenic unsaturated monomer (I) of formula (CH₂=C(R1)-R2-[R3-O] n-R4), (a3) 0-50 mol.% of a monoethylenic unsaturated dicarboxylic acid, an anhydride and/or its salt and (a4) 0-20 mol.% of another copolymerizable monoethylenic unsaturated monomer, where the copolymer exhibits an average molecular weight of 30000-500000 g/mol and a K-value of 40-150, measured at the pH of 7 in 1 wt.% aqueous solution at 25[deg]C; (b) 1-50 wt.% of complexing agent from nitrilotriacetic acid, ethyl diaminetetra acetic acid, diethylethylaminepentaacetic acid, hydroxyethylethyldiaminetriacetic acid and glycine-N, N-diacetic acid and its derivative, glutamic acid-N,N-diacetic acid, iminodisuccinate, hydroxyiminodisuccinate, S,S-ethyldiaminedisuccinate and asparaginic acid diacetic acid and the salts of the aforementioned substances; (C) 1-15 wt.% of weak foaming nonionic surfactant, (D) 0.1-30 wt.% of a bleaching agent and optionally a bleach activator; (e) 0-60 wt.% of a further builder; (f) 0-8 wt.% of enzyme; and (g) 0-50 wt.% of a further additives like anionic or zwitterionic surfactant, bleaching catalyst, alkali carrier, corrosion inhibitors, antifoaming agents, coloring materials, perfumes, fillers, organic solvents and water. An independent claim is included for a powder mixture or a granulate mixture for the cleaning formulations of the dishwasher, comprising: 30-95 wt.% of the copolymers from (a1), (a2) and optionally (a3) and (a4); (b) 5-70 wt.% of complexing agent; and (C) 0-20 wt.% of polyethylene glycol and/or nonionic surfactant. R1 : H or CH₃; R2 : -(CH₂)_x-O-, -CH₂-NR₅-, -CH₂-O-CH₂-CR₆R₇-CH₂-O- or -CONH-; R3 : 2-4C-alkylene that can be arranged as block wise or static manner, where the portion of ethylene amounts to at least 50 mol.%; R4 : H, 1-4C-alkyl, -SO₃M or -PO₃M₂; R5 : H or -CH₂-CR₁=CH₂; R6 : -O-[R3-O] n-R₄, where the -[R3-O] n of the R6 is different compared to the [R3-O] n of (I); R7 : H or ethyl; M : alkali metal or H; n : 4-250; and x : 0 or 1.

IPC 8 full level

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