

(19)



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(11)

EP 0 894 850 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
03.02.1999 Bulletin 1999/05

(51) Int. Cl.⁶: **C11D 3/37**, C11D 3/382,
C11D 3/14, C11D 17/04

(21) Application number: **97119762.9**

(22) Date of filing: **12.11.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **01.08.1997 IT MI971856**

(71) Applicant: **Martini S.p.A.**
43058 Coenzo di Sorbolo (PR) (IT)

(72) Inventor: **Martini, Fulvio**
43058 Coenzo Di Sorbolo Pr (IT)

(74) Representative:
Mancini, Vincenzo, Dr. et al
Ing. A. Giambrocono & C. s.r.l.,
Via Rosolino Pilo 19/B
20129 Milano (IT)

(54) **Detergent composition and means which comprises it**

(57) This invention refers to a new detergent composition, which comprises a resin and a powder and means which comprises it. The composition and means of the invention are particularly suitable for cleaning dishes.

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Description

[0001] This invention refers to a new detergent composition and the means which comprises it.

[0002] In particular, the invention refers to a composition suitable for cleaning dishes and those surfaces in the domestic environment which require great effectiveness whilst respecting the surfaces, without scratching or removing layers and/or coatings.

[0003] Means commonly used for cleaning dishes, such as sponges, cloths, etc. mainly consist of more or less abrasive fibres that, in proportion to their cleaning ability, result in either being excessively delicate and therefore unsuitable for effective cleaning and removal of dirt, or so abrasive as to entail the alteration of the surfaces to be cleaned, by causing, for instance, scratches, grazes, removal of any protective coatings possibly present, etc., respectively.

[0004] These means present the additional disadvantage of rapidly wearing out according to the type of fibre used or, in cases where the fibre is particularly resistant, besides from being particularly abrasive, it does not allow to make a suitably flexible means which permits an easy and accurate surface cleaning. The wearing out of such means is also, without doubt, due to the porosity of the fibres used, which irreversibly impregnate itself in a relatively short time, thus making it necessary its replacement.

[0005] There are also dish cleaning means which comprises detergent compositions, basically consisting of polyurethane resins, particularly suitable for cleaning dishes with delicate surfaces, easy to scratch or having coating or nonstick layers, etc.

[0006] Nevertheless, these means proved to be inadequate because dirt removal is particularly difficult, a high pressure needing to be exerted, in absence of which inaccurate and insufficient results are obtained.

[0007] Now, a detergent composition comprising a resin and a powder has unexpectedly been identified which allows to obtain an accurate cleaning, even on the most delicate surfaces, without scratching or affecting the external protective or nonstick coatings.

[0008] The peculiar association comprised in the composition of the invention allows many types of resin, including polyurethanes, to be used to advantage.

[0009] In particular, the composition of the invention comprises a resin selected from the group consisting of neoprene, phenol, polyester, acrylic, vinyl, urea, polyurethane, epoxy and epoxy-polyurethane resins. In the present invention, the neoprene resins can be, for example, of the Klebofix type produced by Kleboplast, the phenol ones can be, for example, of the Special type produced by Impl Resine, the polyester ones can be, for example, of the Roskidal 500 type produced by Bayer, the acrylic ones can be, for example, of the Novaflex type produced by Ceca Ato, the vinyl resins can be, for example, of the type of Protovil or Deltavil or Protostik produced by Concorde, the urea ones can be, for example, of the type of Protodur produced by Concorde, the polyurethane ones can be, for example, of the type of Idropur, Tecnopur or Protopur produced by Concorde, the epoxy resins can be, for example, of the type of Pelkoll produced by Concorde and the epoxy-polyurethane ones can be, for example, of the type of Cemepox produced by Concorde.

[0010] The powder comprised in the composition of the invention is selected from the group consisting of polypropylene, polythene, polystyrene and polycarbonate powders, maize flour, wood and polyvinylchloride powders; the average sizes of the particles forming the powder are comprised in the range between 150 and 750 microns.

[0011] The quantity of the resin in the composition of the invention is preferably comprised between 70 and 95% by weight, whereas the quantity of the powder is comprised between 5 and 30% by weight.

[0012] In a further extension of the invention, the new composition may comprise an abrasive, amounting to 0.1 to 0.8% by weight, selected from the group consisting of sand, quartz, pumice stone powder, silica, aluminum oxide and magnetite.

[0013] The composition of the invention may also comprise an excipient; in particular, a scent and a colour, each in a quantity comprised between 0.8 and 4.5%. The colour used in the composition of the invention may be vegetable, organic or mineral; the scent can be an essential oil, an extract or a concentrate.

[0014] The composition of the invention may also comprise other excipients such as talc, silica gel, calcium carbonate and grain flour.

[0015] Another subject of the invention is a means for cleaning, for dish cleaning in particular, which comprises the composition of the invention. The support on which the composition of the invention is applied may be of any type, natural or synthetic, among those normally used in the field, such as sponges, cloths etc., for example.

[0016] The composition of the invention may be applied on the support using any of the methods commonly used in the field, such as spraying, for example.

[0017] The following examples illustrate, but do not limit, the invention.

EXAMPLE 1

[0018] 100 g of Protopur, a polyurethane resin produced by Concorde, were mixed with 20 g of Tecmastir, a polystyrene powder produced by Tecma. 2 g of lemon scent (essential oil) and 2 g of yellow chrome powder were separately

mixed and then added to the resin/powder mixture.

EXAMPLE 2

- 5 **[0019]** 120 g of Protopur, a polyurethane resin produced by Concorde, were mixed with 18 g of Tecmastir, a polystyrene powder produced by Tecma, and 12 g of talc. 2.4 g of lemon scent (essential oil) and 2.4 g of yellow chrome powder were separately mixed and then added to the resin/powder/talc mixture.

EXAMPLE 3

- 10 **[0020]** 250 g of Protovil, a polyvinyl resin, produced by Concorde, were mixed with 25 g of wood powder. 2.5 g of pine scent (extract) and 2.5 g of red colour were separately mixed and then added to the resin/powder mixture.

EXAMPLE 4

- 15 **[0021]** 74 g of Novaflex, an acrylic resin produced by Ceca Ato, were mixed with 10 g of polythene powder and 2 g of quartz. 10 g of red colour and 4 g of silica gel were separately mixed and then added to the resin/powder/quartz mixture.

20 Abrasive property test.

[0022] 5 g of a fats and dairy derivatives mixture, in a 30/70 weighted percentage ratio, were evenly spread on copper sheets, 0.2 mm thick and 10 x 15 cm in size, previously heated to 200°C for 15 seconds.

- 25 **[0023]** The mixture was allowed to burn until completely carbonised, eliminating the dry residual and carrying out the test on the remains attached to the sheets. The sheets were subsequently immersed in water and scrubbed with a cleaning means comprising the composition of the invention so as to simulate domestic cleaning.

[0024] Abrasion was determined by counting the number of cycles the device performs before thorough cleaning is achieved, evaluated both visually and by touch.

- 30 **[0025]** The test includes 1000 passes of the cleaning means on the sheets with a frequency of 120 passes/min for a period of approximately 8 minutes. The results are supplied in the table below, where the compositions of the invention are compared with cleaning means available on the market, respectively comprising non abrasive fibres, abrasive fibres and a polyurethane resin.

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		CLEANING	ABRASIVE SURFACE
5	Composition 1 (Ex. 1)	+++	-
10	Composition 2 (Ex. 2)	+++	+
15	Composition 3 (Ex. 3)	++	-
	Composition 4 (Ex. 4)	+++	++
20	Sponge with non abrasive fibre	++	-
25	Sponge with abrasive fibre	+++	+++
30	Sponge with polyurethane resin	++	-

Claims

1. A detergent composition comprising a resin and a powder.
2. A composition according to claim 1, wherein the resin is selected from the group consisting of neoprene, phenol, polyester, acrylic, vinyl, urea, polyurethane, epoxy and epoxy-polyurethane resins and the powder is selected from the group consisting of polypropylene, polythene, polystyrene and polycarbonate powders, maize flour, wood and polyvinylchloride powders.
3. A composition according to one of the previous claims, wherein the quantity of the resin is comprised between 70 and 95% by weight and the quantity of the powder is comprised between 5 and 30% by weight.
4. A composition according to one of the previous claims, wherein the average sizes of the particles forming the powder are comprised between 150 and 750 microns.
5. A composition according to any of the previous claims, comprising an abrasive.
6. A composition according to the previous claim, wherein the quantity of the abrasive is comprised between 0.1 and 0.8% by weight.
7. A composition according to claim 5 or 6, wherein the abrasive is selected from the group consisting of sand, quartz, pumice stone powder, silica, aluminum oxide and magnetite.
8. A composition according to any of the previous claims, comprising an excipient.

9. A composition according to the previous claim, wherein the excipient comprises a scent and a colour, each of which in a quantity comprised between 0.8 and 4.5% by weight.
10. A cleaning means which comprises a composition according to any of the previous claims.

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EUROPEAN SEARCH REPORT

Application Number
EP 97 11 9762

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 100 195 A (PROCTER & GAMBLE) 8 February 1984 * examples I,II,V,VII,XV; table 1 * ---	1,2,10	C11D3/37 C11D3/382 C11D3/14 C11D17/04
X	PATENT ABSTRACTS OF JAPAN vol. 096, no. 003, 29 March 1996 & JP 07 304651 A (NIKKO KEMUTETSUKU KK), 21 November 1995 * abstract * ---	1,2,10	
X	US 5 538 663 A (KIHARA HIDEKI ET AL) 23 July 1996 * example 2 * ---	1,2,4	
X	DATABASE WPI Section Ch, Week 8942 Derwent Publications Ltd., London, GB; Class A97, AN 89-306657 XP002079508 & JP 01 229100 A (NIPPON MINING CO) , 12 September 1989 * abstract * ---	1,5-7	
X	DATABASE WPI Section Ch, Week 9349 Derwent Publications Ltd., London, GB; Class A32, AN 93-392985 XP002079509 & JP 05 295397 A (TOYO CHEM CORP) , 9 November 1993 * abstract * ---	1-3	
X	WO 95 17268 A (FERRO CORP) 29 June 1995 * claims; examples * --- -/--	1,5,7	
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		5 October 1998	Loiselet-Taisne, S
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P04C01)



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Application Number
EP 97 11 9762

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DATABASE WPI Section Ch, Week 9017 Derwent Publications Ltd., London, GB; Class A97, AN 90-129842 XP002079510 & JP 02 080497 A (ASAHI CHEM IND CO LTD) , 20 March 1990 * abstract *	1,10	
A	GB 1 251 972 A (BETTERWEAR PRODUCTS LTD) 3 November 1971 * page 2, column 1, line 57 - line 58; claims 1,6 *	1-5	
A	BE 1 006 739 A (BOLLEN FLOR IRMA LEO JOZEF) 29 November 1994 * claims 1-6; examples *	1-5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 October 1998	Examiner Loiselet-Taisne, S
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

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