

Brigard & Castro

Abogados

SUPERINDUSTRIA Y COMERCIO
Radicación : 00073420 00000004
Fecha (AND): 2002-11-10 16:10:36 Folios: 2
Trámite : 002 PATENTES y REGISTRO/ 538 PETICION
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES
AS: 83.228

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Señores

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES**

E. S. D.

REF.: Expediente No. 00 073.420 solicitud de Patente a nombre de
COLGATE – PALMOLIVE COMPANY

RAMIRO CASTRO DUQUE, vecino de Bogotá, portador de la tarjeta profesional No. 1003 del Consejo Superior de la Judicatura, obrando como apoderado de la Sociedad **COLGATE – PALMOLIVE COMPANY**, según lo acredita el documento de poder protocolizado en la Secretaría General bajo el No. 131, de acuerdo con el Artículo 44 de la Decisión 486 de la Comisión de la Comunidad andina, me permito solicitar que se examine si la invención contenida en la solicitud en referencia es patentable.

De acuerdo con lo anterior, me permito anexar el recibo oficial de caja No. 02-71,437 por valor de \$318.000.

Señor Superintendente,



RAMIRO CASTRO DUQUE
C.C. No. 170.322 de Bogotá
Código 340
T.P. No.1003 del C.S.J.
Cra 7 No. 16-56 Piso 9

Noviembre 14, 2002
CPB/hsr

RC 43

Industria y Comercio
SUPERINTENDENCIA

SUPERINDUSTRIA Y COMERCIO
Radicacion : 88873428 00000004 Folios: 2
Fecha (AMD): 2002-11-18 16:10:56
Tramite : 002 PATENTES y 1 REGISTRO/ 538 PETICION
Dependencia: 2000 DIVISION DE NUEVAS CREACIONES

MIT : 800176089-2

RECIBO OFICIAL DE CAJA : 02 - 71,437
FECHA : OCTUBRE 24 DE 2002

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Vr. PAGO
BRIGARD & CASTRO LTDA	CONSIGNACION	BANCO POPULAR	050-00110-6	5165316	23/10/2002	8,834,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	85 EXAMEN DE PATENTABILIDAD DE INVEN	318,000.00
TOTAL :			\$ 318,000.00

SON: TRESCIENTOS DIEZ Y OCHO MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISIÓN DE NUEVAS CREACIONES

2020/
Bogotá, D.C.,

Doctor
Ramiro Castro Duque
Apoderado

Oficio N° 13320

REFERENCIA	Radicación	00 73420
	Trámite	002
	Evento	001
	Actuación	430
	Folios	013

Como resultado del examen de patentabilidad de la solicitud de patente de invención N° 00 73420, realizado según el artículo 45 de la decisión 486 de la comisión de la Comunidad Andina, se notifica:

Documentos estudiados:

- . Descripción: folios 6-24
- . Ejemplos: folios 25-26
- . Capítulo reivindicatorio estudiado: folios 27-29
- . Se perdió el derecho a prioridad, debido a que presentó la copia de la prioridad de manera extemporánea.

Objeto de la invención

Según las reivindicaciones 1 a 12 de la presente solicitud, se refiere a una composición en dos capas que comprende una fase acuosa inferior que contiene por lo menos 1% de polímero o copolímero y una fase acuosa superior que tiene una cantidad efectiva de un surfactante.

Clasificación internacional de patentes A 61 K 9/10

Claridad de la solicitud

El art. 30 de la decisión 486 contempla que *"Las reivindicaciones definirán la materia que se desea proteger mediante la patente. Deben ser claras y concisas y estar enteramente sustentadas por la descripción"*

45 84

Teniendo en cuenta lo anterior, el término "alrededor de" de las reivindicaciones 1-3 y 9-12 se presta a confusión y no define de manera precisa la materia que se busca proteger.

El término "cantidad efectiva de purificación" en la reivindicación 1 no es claro ya que no define ninguna característica técnica.

La redacción de la reivindicación 3 es confusa y no permite saber de que materia técnica se está hablando.

Favor hacer las aclaraciones y correcciones del caso

Determinación del estado de la técnica:

Consultadas las fuentes de información con que cuenta este despacho, se encontraron los siguientes documentos, anteriores a la fecha de presentación de la presente solicitud - 27.09.00-, relacionados con la materia de la presente solicitud:

Nº	Documento	Título	Fecha de publicación
1	EP 0175485	"Composiciones de champú"	26.03.86
2	US 4348292	"Concentrado detergente multicapa y composiciones que al agregarle agua producen soluciones limpiadoras estables"	07.09.82
3	DE 19811386	"Limpiadoras con varias fases acuosas"	23.09.99
4	US 3254028	"Composiciones líquidas detergentes"	31.05.66

Evaluación de los requisitos de patentabilidad:

El artículo 14 de la decisión 486 de la comisión de la comunidad andina establece que: *"Los países miembros otorgarán patentes para las invenciones, sean de producto o de procedimiento, en todos los campos de la tecnología, siempre que sean nuevas, tengan nivel inventivo y sean susceptibles de aplicación industrial"*

En cumplimiento del artículo 14 de la decisión 486 de la comisión de la comunidad andina, se procedió a evaluar los requisitos de novedad, nivel inventivo y aplicación industrial con el fin de establecer la patentabilidad de la invención reivindicada en la solicitud en estudio.

Evaluación de la NOVEDAD

El artículo 16 de la decisión 486 contempla que *"Una invención se considerará nueva cuando no está comprendida en el estado de la técnica"*

La publicación EP 0175485 (ver reivindicación 1 y ejemplo 21) revela composiciones en dos fases que contienen agua, un surfactante y un agente secuestrante, se menciona el uso de sales de sodio de copolímeros acrílicos.

La patente US 4348292 (ver ejemplo 3) reporta un sistema detergente que contiene dos capas acuosas por separado. Una capa es un surfactante y la otra es un concentrado acuoso que contiene polivinilpirrolidona.

86 90

Comparando elemento por elemento, las composiciones de la reivindicación 1 son iguales a las de las anterioridades citadas y pueden afectar la novedad de la presente solicitud.

Evaluación del NIVEL INVENTIVO

El artículo 18 de la decisión 486 establece que *"Se considerará que una invención tiene nivel inventivo, si para una persona del oficio normalmente versada en la materia técnica correspondiente, esa invención no hubiese resultado obvia ni se hubiese derivado de manera evidente del estado de la técnica"*

- El documento DE 19811386 se refiere a una composición detergente multicapa que se diferencia de las composiciones de la presente solicitud en que estas últimas comprenden un polímero o copolímero.
- La patente US 3254028 enseña que las polivinilpirrolidonas proveen las mismas ventajas que la presente solicitud, es decir facilitan la separación de las fases acuosas dentro de una composición detergente.

Teniendo en cuenta el objeto de la solicitud, el cual es proveer composiciones detergentes acuosas que presentan dos capas dentro de un solo contenedor, es una derivación evidente del estado de la técnica ya que la combinación de los documentos citados enseña a fabricar las composiciones de la presente solicitud.

Un técnico con sus conocimientos y las enseñanzas de los documentos citados llegaría a sintetizar los compuestos que se pretenden proteger.

Finalmente no se demuestra un resultado sorprendente o mejorado de las composiciones de la presente solicitud en relación con las descritas en el estado de la técnica.

En conclusión los requisitos de patentabilidad de la presente solicitud se encuentran afectados así:

Nº	Documento	Reivindicaciones afectadas	Requisito que afecta
1	EP 0175485	1	Novedad
2	US 4348292	1	Novedad
3	DE 19811386	2-12	Nivel Inventivo
4	US 3254028	2-12	Nivel Inventivo

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta días contados a partir de la fecha de la notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo 5 del título primero de la Circular Única Nº 10 de 2001


Clara de Jaimes
Jefe de la División de Nuevas Creaciones (E)

El anterior requerimiento fue notificado por fijación en lista, de fecha 15 DIC. 2005

CONCEPTO TÉCNICO Número 1976	EXAMINADOR TÉCNICO Código 202024
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Europäisches Patentamt
European Patent Office
Office européen des brevets

Publication number:

0 175 485
A2

87 TT

EUROPEAN PATENT APPLICATION

Application number: 88088893.1

Int. Cl.⁴: C 11 D 17/00, A 61 K 7/08,
A 61 K 7/50

Date of filing: 19.08.88

Priority: 21.08.84 GB 8421198

Applicant: RECKITT & COLMAN PRODUCTS LIMITED,
P.O. Box 28 1-17 Burlington Lane, London W4 2RW (GB)

Date of publication of application: 26.03.89
Bulletin 88/13

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Designated Contracting States: AT BE CH DE FR GB IT
LU NL SE

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Shampoo compositions.

Hair or body shampoo having an upper aqueous layer and a lower aqueous layer which are temporarily dispersible one in the other upon agitation of the composition and wherein each layer is miscible with water in substantially all proportions. The upper has dissolved therein at least one detergent. The lower layer contains a sequestering agent such as certain organophosphates, aminocarboxylic acids and/or polyhydroxy-carboxylic acids containing 5 to 7 carbon atoms. The compositions have cleansing properties and impart a conditioning effect.

EP 0 175 485 A2

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CLAIMS

1. A liquid cleansing composition comprising water; at least one surfactant; and at least one sequestering agent, the relative concentrations of the components being so chosen that the composition has at least two distinct layers
5 which are temporarily interdispersible upon agitation and wherein each layer is miscible with water in substantially all proportions.
2. A composition as claimed in Claim 1 in which the surfactant comprises at least one anionic, amphoteric or
10 nonionic surfactant or a mixture thereof.
3. A composition as claimed in Claim 1 or Claim 2 in which the surfactant comprises at least one anionic surfactant and at least one surfactant other than an anionic surfactant.
4. A composition as claimed in Claim 1 or Claim 2 in which
15 the concentration of surfactant comprises up to 50% by weight of the composition.
5. A composition as claimed in Claim 1 or Claim 2 in which the sequestering agent comprises up to 30% by weight of the composition.
- 20 6. A composition as claimed in any preceding claim in which the sequestering agent provides a complexing anion which is strong enough for a 0.01M solution thereof to be in equilibrium with less than 10^{-3} mole of calcium ion.
7. A composition as claimed in any preceding claim in
25 which the sequestering agent comprises at least one compound which is an organophosphonic acid or salt thereof, an aminocarboxylic acid or a salt thereof or a mixture thereof.

98
89

TABLE

Example N° →

- A = Phase volume ratio
 - B = Sodium lauryl ether (2) sulphate
 - C = Sodium lauryl ether (3) sulphate
 - D = Triethanolamine lauryl sulphate
 - E = Monoethanolamine lauryl sulphate
 - F = Ammonium lauryl sulphate
 - G = Triethanolamine lauryl ether (2) sulphate
 - H = Sodium C₁₄₋₁₆ olefin sulphonate
 - I = Sodium trideceth-7 carboxylate
 - J = Cocoamphocarboxyglycinate
 - K = Disodium pareth - 25 sulphosuccinate
 - L = Ethoxylated glyceryl monococoate
 - M = Triethanolamine salt of arylamide polyglycol ether sulphate
 - N = Sodium chloride
 - O = Sodium diethylenetriamine pentakis (methylene phosphonate)
 - P = Sodium salt of nitrilotris (methylene phosphonic acid)
 - Q = Sodium sesquicarbonate
 - R = Sodium heptonate
 - S = Trisodium salt of n-hydroxyethyl ethylenediamine triacetic acid
 - T = Coconut monoethanolamide ethoxylate
 - U = Coconut diethanolamide
 - V = Lauric isopropanolamide
 - W = Alkyl amidopropyldimethylamine betaine
 - X = Myristyl dimethyl amine oxide
 - Y = Cocamidopropyl hydroxysultaine
 - Z = Polyethylene glycol 6000 distearate
 - AB = Polyethylene glycol 4000 distearate
 - AC = Polyethylene glycol 120 methyl glucose dioleate
 - AD = Cetylalcohol polyether phosphate
 - AE = Quaternium 70/Propylene glycol
 - AF = Hydroxypropyl methyl cellulose
 - AG = Sodium salt of acrylic acid copolymer
 - AH = Hydrolysed protein
 - AI = Sodium deceth 7-carboxylate
 - AJ = Complex N-cocoamine carboxylic acid of molecular weight between 400 and 800
 - AK = Lauryl/myristyl dimethyl betaine
 - AL = Piroctone olamine
 - AM = Polyquaternium-7
 - AN = Cocoamphoglycinate
- Water ad 100% and Perfume, Colourant, Preservative q.s.

94
90

0175485

-26-

TABLE (cont.)

Example N° (%Actives)		<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>
A		96:4	43:57	67:33	62:38	73:27	58:42	54:46
B	27.5			18.0				
C	27					25.5		
D	41							
E	33				32.0			
F	30							
G	30							
H	35	33.57				8.5		
I	75							
J	30						7.4	7.4
K	40		30.0					
L	100			4.0				
M	30							
N	100							
O	100				4.89			
P	100	4.92	4.92	4.92		8.2	5.74	5.74
Q	100							
R	100							
S	100							
T	100							
U	100	5.0	2.0	6.0		5.0		
V	100							
W	30							
X	30							
Y	45			5.67				
Z	100	8.0	8.0		8.0			
AB	100							
AC	100					1.5	3.0	3.0
AD	100			5.0				
AE	54			1.0				
AF	100							
AG	100			0.3				
AH	100							
AI	70						11.57	11.57
AJ	30						1.6	1.6
AK	30						5.0	5.0
AL	100						0.7	
AM	8						3.0	3.0
AN	30			2.0				

Water ad 100% and Perfume, Colourant, Preservative q.s.

United States Patent [19]

Ginn

[11] 4,348,292

[45] Sep. 7, 1982

[54] **MULTI-LAYERED LIQUID
DETERGENT-BUILDER CONCENTRATE
COMPOSITIONS WHICH ON ADDITION TO
WATER PRODUCE STABLE CLEANING
SOLUTIONS**

[75] Inventor: Martin E. Ginn, Skokie, Ill.

[73] Assignee: Walton-March, Inc., Highland Park, Ill.

[21] Appl. No.: 197,918

[22] Filed: Oct. 17, 1980

[31] Int. Cl.³ C11D 17/04; C11D 11/00

[32] U.S. Cl. 252/90; 252/135;
252/153; 252/174; 252/174.14; 252/174.21;
252/546; 252/547; 252/DIG. 14

[58] Field of Search 252/90, 92, 153, 546,
252/135, 174.21, 547, DIG. 14, 174

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,322,674 5/1967 Friedman 252/90
3,970,595 7/1976 Ginn et al. 252/545
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4,253,842 3/1981 Ehrlich 8/137
4,264,479 4/1981 Flanagan 252/524

Primary Examiner—P. E. Willis, Jr.

Attorney, Agent, or Firm—Sidney Wallenstein

[57]

ABSTRACT

A detergent system, especially adapted for single-use applications, in the form of a fluid-tight container having two separate layers of liquid compositions therein, one of the liquid compositions comprising a predetermined volume of a concentrate of a surfactant or detergent, and the other composition comprising a predetermined volume of a concentrate of an inorganic builder. The compositions are characterized in that, if mixed together in their concentrated form, they would be incompatible or immiscible, and would result in a non-homogeneous mixture. However, the compositions are so related as to the ingredients and proportions thereof, that when the separate layers are poured from the container into a predetermined volume of a diluent such as water, a stable cleaning or detergent solution or dispersion is obtained in ready-to-use form.

15 Claims, No Drawings

cleaning operations. The use-dilution ranges, that is, the amount or volume of diluent such as water to be used in producing a stable ready-to-use solution with the concentrates comprising a particular system also will depend upon the end use of the solution. In broad terms, the use-dilution ranges for good performance will be of the order of about 1 of the concentrate system to about 30 to about 300 of water.

The fluid-tight containers comprising the system may be fabricated of glass or plastic. For average cleaning jobs, the containers advantageously will be in the form of a flexible, single-use bag or packet made of a thermoplastic sheet material such as polyethylene. Heat sealable containers of this type will contain from about 1 or 2 to about 6 ounces of the concentrate layers, and, while resistant to tearing, can be readily opened. The concentrate layers can be injected into the bag or packet, and the bag or packet heat sealed, with conventional equipment.

The following compositions are illustrative of the system of the present invention. The percentages are given on a weight basis.

EXAMPLE I

Hard Surface Cleaner			
Surfactant Conc. Layer		Builder Conc. Layer	
Ingredients	%	Ingredients	%
1. 7-12 Mole ethoxylate of lauryl alcohol (nonionic)	98.95	1. Water	67.90
2. Hardal Fine Perfume	1.00	2. Potassium Carbonate	6.80
3. Soap Green Dye	0.05	3. Tetrasodium ethylenediamine-tetraacetate (Na ₄ EDTA)	7.20
		4. Potash (30% KOH in water)	18.30

EXAMPLE II

Hard Surface Cleaner			
Surfactant Conc. Layer		Builder Conc. Layer	
Ingredients	%	Ingredients	%
1. Linear fatty alcohol ethoxylate (Polyfic LAS)	98.95	1. Water	24.00
2. Perfume	1.00	2. Potassium Carbonate	26.00
3. Dye	0.05	3. Potash solution (30%)	18.00
		4. Na ₄ EDTA solution	32.00

EXAMPLE III

Detergent			
Surfactant Conc. Layer		Builder Conc. Layer	
Ingredients	%	Ingredients	%
1. 10 Mole ethoxylate of nonylphenol (nonionic)	69.047	1. Water	72.00
2. N-Tallowdimethylbenzyl ammonium chloride	2.25	2. Polyvinyl Pyrrolidone	1.00
3. N-Cetyltrimethylammonium chloride	2.25	3. Na ₄ EDTA	10.00
4. Water	4.45	4. Citric Acid	8.00
5. Betaine surfactant	5.00	5. KOH (Potassium hydroxide)	9.00
6. Silicone surfactant	2.00		
7. Imidazoline derivative of tall oil	1.00		
8. Silicone foam inhibitor	0.003		
9. Monoethanolamine	12.00		

EXAMPLE IV

Floor Finish Remover			
Surfactant Conc. Layer		Builder Conc. Layer	
Ingredients	%	Ingredients	%
1. Monoethanolamine	30.47	1. Na ₄ EDTA	17.01
2. Butyl Cellulosive	21.50	2. Potassium hydroxide	10.14
3. Dodecylbenzene sulfonic acid	4.91	3. Potassium Carbonate	11.90
4. Fatty alkanoamide	18.42	4. Water	60.93
5. Nonylphenol ethoxylate (10 mole ethylene oxide)	22.30		
6. Silicone defoamer	0.25		
7. Dye	trace		
8. Fragrance	0.15		

EXAMPLE V

Bowl Cleaner			
Surfactant Conc. Layer		Builder Conc. Layer	
Ingredients	%	Ingredients	%
1. 7-12 Mole ethoxylate of octyl alcohol	56.20	1. Water	63.33
2. 7-12 Mole ethoxylate of octyl phenol	20.69	2. Sodium Gluconate	16.67
3. Isopropanol	1.41	3. Potassium Carbonate	20.00
4. Perfume	7.14		
5. Dye	0.28		
6. Cocodimethylbenzylammonium chloride	3.57		
7. Lauryldimethylbenzylammonium chloride	3.57		
8. Water	7.14		

In order to demonstrate the improved cleaning efficiency of stable detergent or cleaning solutions or dispersions produced with the systems of the present invention over the cleaning efficiency of conventional homogeneous detergent or cleaning solutions, as well as to show the cost advantages afforded by the systems over conventional homogeneous solutions, comparative performance/cost tests were carried out using an all-purpose cleaner prepared with a system of this invention and a conventional all-purpose cleaner.

COST/PERFORMANCE COMPARISON

Table I gives the formula, cost data, and the cleaning efficiency at use-dilution for an all purpose cleaner produced from a system of the invention. At a dilution ratio of 1/256, the cleaning efficiency (C.E.) of this formula-



GA
93

① BUNDESREPUBLIK
DEUTSCHLAND



DEUTSCHES
PATENT- UND
MARKENAMT

② **ffenlegungsschrift**
③ **DE 198 11 386 A 1**

④ Int. Cl.⁸
C 11 D 17/00
C 11 D 3/06
C 11 D 1/12
C 11 D 1/68
C 11 D 3/18
C 11 D 3/20

⑤ Aktenzeichen: 198 11 386.2
⑥ Anmeldetag: 18. 3. 98
⑦ Offenlegungstag: 23. 9. 99

DE 198 11 386 A 1

⑧ Anmelder:
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⑨ Erfinder:
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Dr., 40689 Düsseldorf, DE; Benoit, Marc, Versailles,
FR

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

- ⑩ Wäßriges mehrphasiges Reinigungsmittel
- ⑪ Wäßrige flüssige mehrphasige tensidhaltige Reinigungsmittel mit wenigstens zwei kontinuierlichen Phasen, die mindestens eine untere wäßrige Phase I sowie eine mit dieser Phase nicht mischbare obere wäßrige Phase II aufweisen und sich durch Schütteln temporär in eine Emulsion überführen lassen sowie 0 bis 5 Gew.-% Natriumhexametaphosphat, sind leistungstarke, lagerstabile und leicht handhabbare Mittel zur Reinigung harter Oberflächen, zu der man wäßrige flüssige mehrphasige tensidhaltige Reinigungsmittel mit wenigstens zwei kontinuierlichen Phasen, die mindestens eine untere wäßrige Phase I sowie eine mit dieser Phase nicht mischbare obere wäßrige Phase II aufweisen und sich durch Schütteln temporär in eine Emulsion überführen lassen, verwenden kann. Ein Verfahren zur Herstellung derartiger Mittel beinhaltet das Aufmischen unmittelbar aus den Rohstoffen, anschließendes Durchmischen und abschließendes Stehen der Mittel zur Auftrennung der temporären Emulsion.

DE 198 11 386 A 1

Das Rückstandsverhalten wurde auf schwarzen Kacheln geprüft. Die Rückstandsnote der erfindungsgemäßen Mittel liegt hierbei auf dem Niveau der handelsüblichen Allzweckreiniger in Deutschland. Das ist auch dann noch der Fall, wenn die Mittel Hydrophobkomponenten enthalten.

Zusammensetzung der Phasen I und II

Die Zusammensetzung der Phasen I und II des erfindungsgemäßen Reinigungsmittels B) ist in Tabelle 2 angegeben.

Tabelle 2

El	Phase I [Gew.-%]	Phase II [Gew.-%]
a)	0	6,2
c)	< 0,05	3,3
d)	1,06	1,0
f)	11,5	8,9
j)	< 0,05	7,9
k)	< 0,05	1,6
l)	85,0	70,7

Die obere Phase II beinhaltet fast die gesamte Menge an Tensid (a, c), Hydrophobkomponente (j) und Parfum (k), während die untere Phase I fast ausschließlich einen Teil des Phasentrennhilfsmittels (f) und des Builders (d) enthält.

Patentansprüche

1. Wässriges flüssiges mehrphasiges tensidhaltiges Reinigungsmittel mit wenigstens zwei kontinuierlichen Phasen, das mindestens eine untere wässrige Phase I sowie eine mit dieser Phase nicht mischbare obere wässrige Phase II aufweist und sich durch Schütteln temporär in eine Emulsion überführen läßt, dadurch gekennzeichnet, daß es 0 bis 5 Gew.-% Natriumhexametaphosphat enthält.
2. Mittel nach einem der Ansprüche 1, dadurch gekennzeichnet, daß die kontinuierlichen Phasen I und II durch eine scharfe Grenzfläche gegeneinander abgegrenzt sind.
3. Mittel nach einem der Ansprüche 1 oder 2, dadurch gekennzeichnet, daß eine oder beide der kontinuierlichen Phasen I und II Teile, bevorzugt 0,1 bis 25 Vol.-%, insbesondere 0,2 bis 15 Vol.-%, bezogen auf das Volumen der jeweiligen kontinuierlichen Phase, der jeweils anderen Phase als Dispersens enthalten.
4. Mittel nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß Phase I in Mengen von 0,1 bis 25 Vol.-%, bevorzugt 0,2 bis 15 Vol.-%, bezogen auf das Volumen der Phase II, in Phase II emulgiert ist.
5. Mittel nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß neben den kontinuierlichen Phasen I und II ein Teil der beiden Phasen als Emulsion einer der beiden Phasen in der anderen Phase vorliegt, wobei diese Emulsion durch zwei scharfe Grenzflächen, eine obere und eine untere, gegenüber den nicht an der Emulsion beteiligten Teilen der Phasen I und II abgegrenzt ist.
6. Mittel nach einem der Ansprüche 1 bis 5, dadurch gekennzeichnet, daß das Mittel Phase I und Phase II in einem Volumenverhältnis von 90 : 10 bis 10 : 90, vorzugsweise 75 : 25 bis 25 : 75, insbesondere 65 : 35 bis 35 : 65 enthält.
7. Mittel nach einem der Ansprüche 1 bis 6, dadurch gekennzeichnet, daß das Mittel zusätzlich Hydrophobkomponenten aus der Gruppe der Dialkylether mit gleichen oder verschiedenen C₄- bis C₁₄-Alkylresten, insbesondere Dioctylether, Kohlenwasserstoffe mit einem Siedebereich von 100 bis 300°C, insbesondere 140 bis 280°C, etherische Öle, insbesondere Limonen und Pine Oil, und deren Mischungen, insbesondere Mischungen von zwei oder drei der genannten Hydrophobkomponenten, enthält.
8. Mittel nach einem der Ansprüche 1 bis 7, dadurch gekennzeichnet, daß das Mittel zusätzlich Phasentrennhilfsmittel, bevorzugt aus der Gruppe der Alkalimetall- und Erdalkalimetallchloride und -sulfate, insbesondere Natrium- und Kaliumchlorid und -sulfat, sowie Ammoniumchlorid und -sulfat bzw. deren Mischungen, enthält.
9. Mittel nach einem der Ansprüche 1 bis 8, dadurch gekennzeichnet, daß das Mittel anionisches Tensid, bevorzugt aus der Gruppe der C₈-C₁₈-Alkylsulfate, der C₈-C₁₈-Alkylethersulfate und C₈-C₁₈-Alkylbenzolsulfonate und deren Mischungen, enthält.
10. Mittel nach einem der Ansprüche 1 bis 9, dadurch gekennzeichnet, daß das Mittel nichtionisches Tensid, bevorzugt aus der Gruppe der C₈-C₁₈-Alkylalkoholpolyglykoether, der Alkylpolyglycoside und deren Mischungen, enthält.
11. Mittel nach einem der Ansprüche 1 bis 10, dadurch gekennzeichnet, daß das Mittel anionisches und nichtionisches Tensid, vorzugsweise C₈-C₁₈-Alkylbenzolsulfonate, C₈-C₁₈-Alkylsulfate und/oder C₈-C₁₈-Alkylethersulfate neben C₈-C₁₈-Alkylalkoholpolyglykoethern und/oder Alkylpolyglykosiden, insbesondere C₈-C₁₈-Alkylbenzolsulf-

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LIQUID DETERGENT COMPOSITION

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The present application is a continuation-in-part of abandoned application Serial No. 861,192, filed December 22, 1959, which was a continuation-in-part of Serial Nos. 532,734 and 532,735, filed September 6, 1955.

The present invention relates to a substantially homogeneous heavy-duty liquid detergent composition comprising a water-soluble organic detergent, a water-soluble alkaline inorganic builder salt, a water soluble cellulose compound and a water-soluble vinyl polymer, as herein-after described and claimed.

In the detergent art, it is known to prepare detergent compositions in powdered form, such as obtained by the spray-drying of a slurry of the detergent composition. Such powdered products may comprise an organic detergent and inorganic builders, such as phosphates and silicates, and a soil-suspending or anti-redeposition agent such as carboxymethylcellulose. Many soil-anti-redeposition agents are known, including various cellulose compounds, natural gums, carbohydrates, vinyl polymers, protein materials, etc.

The incorporation of sodium carboxymethylcellulose or the like in a heavy-duty liquid detergent solution comprising substantial amounts of an organic detergent, e.g., alkyl benzene sulfonate, and water-soluble inorganic builder salts, e.g., polyphosphate salts, results in a tendency towards phase separation, or formation of a plurality of distinct layers, one of which has the carboxymethylcellulose concentrated therein. The use of other soil-suspending agents such as polyvinyl alcohol or polyvinylpyrrolidone or the like results also in a tendency for phase separation and non-uniformity of the product.

In accordance with the present invention, it has been found that the separation of such soil-suspending agents in a heavy-duty liquid detergent composition may be inhibited by the simultaneous presence of a suitable mixture of soil-suspending agents which act as mutual or reciprocal stabilizing agents, said mixture comprising a water-soluble cellulose compound and a water-soluble vinyl polymer.

More particularly, the present invention relates to a substantially homogeneous, heavy-duty liquid detergent composition which comprises essentially of a water-soluble non-cationic organic detergent in an amount from the range of about 5 to 30% by weight, a water-soluble alkaline inorganic builder salt in an amount from the range of about 5 to 30% by weight, about 0.1 to .5% by weight of a mixture of said vinyl polymer and cellulose material in a suitable ratio from the range of about 20:1 to 1:20 by weight, and an aqueous solubilizing medium in admixture therewith sufficient to form a pourable, homogeneous liquid. An embodiment thereof relates to the mixture of a carboxymethylcellulose and vinyl polymer in a ratio from about 10:1 to 1:10 by weight in a liquid containing 5 to 20% by weight of an alkali metal

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anionic sulfonated detergent such as a higher alkyl benzene sulfonate, a potassium polyphosphate selected from the group consisting of pyrophosphates and triphosphates, a water-soluble sulfonated hydrotropic salt, and a higher fatty acid alkylolamide in proportions to form a substantially homogeneous product.

Such product exhibits many desirable characteristics including, particularly, the improved stability against separation of the soil-suspending agents. The product is maintained in substantially homogeneous condition upon aging. This improved stability is exhibited upon storage for long periods of time at normal room temperature and upon testing at elevated temperatures and upon cooling and permitting the product to return to room temperature, as compared to similar products which contain only one of said suspending agents. The composition is pourable and free-flowing from the container at room temperature. The product may be utilized conveniently by the consumer by the addition of small portions to a laundering bath or the like and, by reason of the substantial homogeneity of the liquid each such small portion, will have practically the same composition. The liquid may be employed in any suitable container or packaging material such as metal, glass or plastic in the form of bottles, cans, drums, or bags.

The composition exhibits a high level of washing power during the laundering in washing baths of a wide variety of natural and synthetic materials. It is particularly effective for the laundering of resin-treated cottons known as "wash-and-wear" materials, and for synthetic fabrics such as nylon and Dacron in addition to cotton. In general, the over-all detergent properties of the liquid results in a superior whiteness in the laundering of a variety of white materials as compared to the effects obtained using an equivalent amount of either of the soil-suspending agents alone.

The cellulose compound is a hydrophilic colloid which is soluble or dispersible in water. In general, these materials are classified as water-soluble and act as soil anti-redeposition agents during washing of soiled articles. It is preferred to use the alkali metal salts of a carboxy lower alkyl cellulose having up to 3 carbons in the alkyl group, such as the sodium and potassium salts of carboxymethylcellulose. Sodium carboxymethylcellulose and the like are available usually in the form of powders in various grades of purity and viscosity in solution. The commercial grades of sodium carboxymethylcellulose having a purity from about 60 to 100% on a dry basis and which are of low, medium or high viscosity may be employed. The degree of substitution of the carboxymethyl group per anhydroglucose unit in the cellulose molecule is variable, but is within the range from about 0.5 to 2, and usually up to about 1.25 substitution. It is preferred to employ carboxylated cellulose having about 0.5 to 0.9 substitution, particularly about 0.5 to 0.7, for highly effective soil-suspending properties. Another known water soluble carboxyalkylcellulose salt is sodium carboxylethylcellulose. Other cellulose compounds are the lower alkyl and hydroxyalkyl ethers such as methyl-, ethyl-, and hydroxyethylcellulose. The cellulose sulfates may be used also.

A water-soluble vinyl polymer is used in admixture with the cellulose material. The specific or exact degree of polymerization of the vinyl polymer is not criti-

perfume, color and fluorescent dye as desired. The specified period of stability refers only to the number of months after which each composition was examined and does not mean that the compositions did not remain substantially homogeneous afterwards.

Examples VII-XI

Other suitable compositions are:

Ingredients	VII	VIII	IX	X	XI
Sodium higher alkyl benzene sulfonate	8.0	8.0	10.0	8.0	10.0
Sodium nonyl phenol ethylene oxide sulfate	8.0			8.0	
Sodium lauryl ether sulfate		8.0			
Lauryl-myristic (70:30) isopropylamide	2.0	2.0	2.5	2.0	2.0
Lauryl-myristic (70:30) diethanolamide	2.0	2.0	2.5	2.0	
Sodium xylene sulfonate (comm.)	0.5	0.5	0.5	0.5	0.5
Potassium toluene sulfonate	2.0	2.0	2.0	2.0	
Potassium pyrophosphate	10.0	10.0	10.0		
Sodium silicate				10.0	10.0
Castor wax	0.3	0.3		0.3	0.3
Sodium carboxymethylcellulose	0.25	0.25	0.25	0.25	0.25
Polyvinyl alcohol	0.25	0.25	0.5	0.25	0.25
Water	Bal.	Bal.	Bal.	Bal.	Bal.

In the above formulations, the higher alkyl benzene sulfonate has alkyl chains corresponding on the average to a tridecyl group, as described. The sulfated nonyl phenol has on the average about 5 ethylene oxide groups and the lauryl ether sulfate has about 3 ethylene oxide groups on the average condensed to lauryl alcohol. The sodium silicate has a sodium oxide to silica ratio of 1:2.35 and is given on a solids basis. The polyvinyl alcohol has a viscosity of about 4-6 cps. and about 88% hydrolysis.

Examples XII-XIII

The formulations of Examples VII and X above are prepared using polyvinyl alcohol having a viscosity of 1.8-3 centipoises and a polyvinyl acetate content of 10-30%, e.g., 2.34 cps. and 22.3% acetate.

Examples XIV-XV

Ingredients	XIV	XV
	Percent	Percent
Sodium tridecyl benzene sulfonate	10	10
Comm. diethanolamide	3	3
Sodium xylene sulfonate (comm.)	7	7
Potassium pyrophosphate	15	
Sodium silicate		15
Castor wax	0.3	0.3
Sodium carboxymethylcellulose	0.25	0.25
Polyvinyl alcohol	0.25	0.25
Ethanol	4	4
Water	Bal.	Bal.

In these examples, the same ingredients are employed as described with the silicate having an alkali oxide to silica ratio of 1:2, and the polyvinyl alcohol having a viscosity of 1.8-3 and an acetate content of 10-30% as described above.

Example XVI

Ingredients:	Percent
Nonyl phenol ethylene oxide (9 moles)	5
Sodium tridecyl benzene sulfonate	2
Sodium di-lauryl di-phenyl oxide di-sulfonate	10
Sodium xylene sulfonate (comm.)	5
Potassium pyrophosphate	20
Castor wax	0.3
Sodium carboxymethylcellulose	0.25
Polyvinyl alcohol (1.8-3 cps., 10-30% ester)	0.25
Water	Bal.

In addition to maintaining a substantially homogeneous appearance, such formulations exhibit a high degree of washing power, particularly in soil-suspension ability, in the laundering of fabrics, particularly resin-treated cottons and synthetic materials, e.g., nylon and Dacron.

In general, the compositions containing the cellulose compound and polyvinyl alcohol are preferred since they exhibit markedly better soil-suspension properties upon aging for prolonged periods of time compared to similar compositions containing the cellulose compound and polyvinylpyrrolidone.

Although the present invention has been described with reference to particular embodiments and examples, it will be apparent to those skilled in the art that variations and modifications can be substituted therefor without departing from the principles and true spirit of the invention.

Having described the invention, what is desired to be claimed by Letters Patent is:

1. An aqueous liquid detergent composition which consists essentially of about 5 to 30% by weight of a water-soluble anionic organic sulfonated detergent, about 10 to 30% by weight of a water-soluble alkaline inorganic builder salt selected from the group consisting of alkali metal polyphosphates and alkali metal silicates, about 4 to 12% by weight of water-soluble organic hydrotropic salt selected from the group consisting of alkali metal alkyl substituted benzene-sulfonates having up to 3 carbon atoms in said alkyl substituent and alkyl sulfates having 5 to 6 carbon atoms in the alkyl group, about 0.1 to 5% by weight of a mixture of (a) water-soluble alkali metal carboxymethylcellulose salt normally tending to separate from an aqueous mixture of said detergent salt and said builder salt in said proportions, and (b) a water-soluble polyvinyl compound selected from the group consisting of polyvinyl alcohol having a viscosity from the range of about 1.8 to 65 centipoises in a 4% aqueous solution with a polyvinyl acetate content from about 10 to about 30% and polyvinylpyrrolidone having an average molecular weight in the range of 15,000 to 100,000, said polyvinyl compound normally tending to separate from an aqueous mixture of said detergent and said builder salt in said proportions, the ratio of said carboxymethylcellulose to said polyvinyl compound being from about 20:1 to about 1:20 by weight and effective to inhibit the separation of one another from said aqueous mixture, and the balance being water sufficient to form a pourable, substantially homogeneous liquid, the total solids content being less than about 65% by weight of the composition.

2. A liquid detergent composition in accordance with claim 1 wherein said builder comprises a potassium polyphosphate selected from the group consisting of potassium pyrophosphate and tripolyphosphate.

3. A liquid detergent composition in accordance with claim 1, wherein said builder comprises sodium silicate.

4. A liquid detergent composition in accordance with claim 1 which contains about 1-15% by weight of higher fatty acyl alkylolamide selected from the group consisting of diethanolamides, monoethanolamides and isopropanolamides having about 10 to 14 carbon atoms in said fatty acyl group.

5. An aqueous liquid detergent composition in accordance with claim 1 which contains polyvinyl alcohol having a viscosity of about 1.8 to 6 centipoises.

6. An aqueous liquid detergent composition in accordance with claim 1 which contains polyvinylpyrrolidone having an average molecular weight of about 15,000 to 40,000.

7. An aqueous liquid detergent composition in accordance with claim 1 wherein the ratio of said carboxymethylcellulose to said polyvinyl compound is from about 5:1 to 1:5 by weight.

8. A detergent composition in the form of a substantially homogeneous, pourable aqueous liquid which consists essentially of about 5 to 30% by weight of a water-soluble anionic organic sulfonated detergent, said detergent comprising an alkali metal alkyl benzene sulfonate having about 8 to 15 carbons in the alkyl group, about 10 to 25% by weight of a potassium polyphosphate salt selected from the group consisting of potassium pyro-