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(54) **LAUNDRY COMPOSITIONS**

WASCHMITTEL

COMPOSITIONS DETERGENTES POUR LE LINGE

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Description

FIELD OF THE INVENTION

5 [0001] This invention relates to improvement to laundry compositions. More particularly, the invention is directed to an emulsion and to a laundry composition comprising the emulsion.

BACKGROUND OF THE INVENTION

10 [0002] Silicone oils are known to be useful for softening fabrics, and are included in many laundry compositions. There is a problem with these materials, as they are expensive components, but the deposition onto fabrics is inefficient.

[0003] One way to increase the deposition of silicones is to formulate them in the form of an emulsion, using for example nonionic surfactants as an emulsifier.

[0004] However, the problem remains that the deposition is still inefficient.

15 [0005] There is thus a need to increase the efficiency of deposition of silicones onto fabric.

SUMMARY OF THE INVENTION

20 [0006] In a first aspect, this invention is directed to an emulsion comprising:-

(a) a liquid droplet particle comprising a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate and a silicone liquid; and,

(b) an aqueous continuous phase.

25 [0007] A second aspect of the invention relates to a process to make the emulsion of the first aspect. The process comprises mixing together a silicone liquid, a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate and water.

[0008] The third aspect of the invention relates to a laundry composition comprising:-

30 a) from 5 to 65 wt.% of a surfactant; and,

b) from 0.5 to 30 wt.% of an emulsion according to the first aspect.

[0009] Another aspect of the invention relates to the use of a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate to increase the level of deposition of a silicone onto fabric. The copolymer is ideally used in the form of an emulsion either alone, or as part of a laundry composition.

DETAILED DESCRIPTION OF THE INVENTION

40 [0010] As used herein, the term "comprising" means "including", "made up of", "composed of", "consisting and/or consisting essentially of".

[0011] All percentages quoted are wt.% unless otherwise stated.

[0012] As used herein, a formulation shall be considered physically "stable" when after 1 week at 21 degrees Celsius it exhibits no signs of phase separation.

45 [0013] The emulsion comprises:-

(a) a liquid droplet particle comprising a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate and a silicone liquid; and,

(b) an aqueous continuous phase.

50 [0014] The copolymer of polyethylene terephthalate and polyoxyethylene terephthalate preferably has a molecular weight of from 5000 to 50,000 Daltons, more preferably from 20,000 to 50,000 Daltons.

[0015] The particle present in the emulsion is in the form of a liquid droplet. Preferably the size of the liquid droplet is from 0.5 to 20 μ m.

[0016] The silicone liquid present in the particle of the emulsion preferably has a viscosity of from 5,000 to 100,000 cP.

55 [0017] A particle is considered as a discrete entity which is stable in its surrounding medium. For example, the medium can be air for an isolated solid particle, or water (an example of an aqueous continuous phase) for a liquid particle in an emulsion.

Process To Make The Emulsion

[0018] The process to make the emulsion comprises mixing together a silicone liquid, a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate (PET-POET) and water.

[0019] Preferably the copolymer of polyethylene terephthalate and polyoxyethylene terephthalate is first dissolved in water prior to addition to the silicone oil. More preferably the copolymer is dissolved in water to a concentration of 1% by weight to provide an emulsifier solution.

[0020] Suitable mixing methods for the process include mixing the ingredients together using a high shear stirrer. A suitable time period is 90 seconds.

[0021] The emulsion typically comprises from 30 to 99.9 wt.%, preferably from 40 to 99 wt.% of the aqueous continuous phase. The aqueous continuous phase may be solely water, or a water based mixture comprising water as a majority component.

[0022] The emulsion may further contain an emulsifying agent, for example a surfactant such as nonionic, anionic, cationic, zwitterionic and amphoteric surfactants. The emulsifier can be mixed together with the other emulsion ingredients as hereinbefore described.

[0023] If an emulsifying agent is used, preferably it is a nonionic surfactant. Alternatively the PET-POET copolymer can act itself as an emulsifier, without the requirement for an additional emulsifier to be employed.

[0024] Suitable nonionic surfactants as emulsifiers include the (poly)-alkoxylated analogues of saturated or unsaturated fatty alcohols, for example, having from 8 to 22, preferably from 9 to 18, more preferably from 10 to 15 carbon atoms on average in the hydrocarbon chain thereof and preferably on average from 3 to 11, more preferably from 4 to 9 alkyleneoxy groups. Most preferably, the alkyleneoxy groups are independently selected from ethyleneoxy, propyleneoxy and butyleneoxy, especially ethyleneoxy and propyleneoxy, or solely ethyleneoxy groups and alkyl polyglucosides as disclosed in EP 0 495 176.

Form of the Invention

[0025] The emulsion can be included in laundry products taking a number of forms. The laundry product can take the form of a laundry treatment agent for fabric, in which case it can be a laundry composition comprising:-

- a) from 5 to 65 wt.% of a surfactant; and,
- b) from 0.5 to 30 wt.% of an emulsion according to the first aspect of the invention.

[0026] Preferably the emulsion is present in the laundry composition at a level of from 0.5 to 20 wt.%, more preferably from 1 to 10 wt.% based on the total composition.

[0027] The laundry composition may be a main wash composition, a rinse composition, or a pre- or after-wash treatment composition, all of which may be dilutable or non-dilutable. Main wash compositions are preferred.

[0028] The compositions of the invention may be in any physical form e.g. a solid such as a powder or granules, a tablet, a solid bar, a paste, gel or liquid, especially, an aqueous based liquid. In particular the compositions may be used in laundry compositions, especially in liquid, gel, powder or tablet laundry composition.

[0029] If the laundry composition is a main wash composition, then the pH range of the composition is from pH 7-12, preferably from pH 8.5 to 9.5. It is desirable to buffer the formulation at whatever the target pH of the composition is.

[0030] Another aspect of the invention relates to the use of a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate to increase the level of deposition of a silicone onto fabric.

[0031] The copolymer is ideally used in the form of an emulsion either alone, or as an emulsion included as part of a laundry composition.

[0032] Thus the invention also may relate to the use an emulsion comprising a particle comprising a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate and a silicone liquid in an aqueous continuous phase to increase the level of deposition of a silicone onto fabric. Preferably the emulsion is incorporated as part of a laundry product as described herein.

COMPONENTS

Surfactants

[0033] The laundry composition comprises a surfactant, preferably a deterative surfactant. Suitable surfactants comprise nonionic surfactants and anionic surfactants.

[0034] They may be chosen from the surfactants described in "Surface Active Agents" Vol. 1, by Schwartz & Perry, Interscience 1949, Vol. 2 by Schwartz, Perry & Berch, Interscience 1958, in the current edition of "McCutcheon's Emul-

sifiers and Detergents" published by Manufacturing Confectioners Company or in "Tenside-Taschenbuch", H. Stache, 2nd Edn., Carl Hauser Verlag, 1981. Preferably the surfactants used are saturated.

[0035] Suitable nonionic detergent compounds which may be used include, in particular, the reaction products of compounds having a hydrophobic group and a reactive hydrogen atom, for example, aliphatic alcohols, acids, amides or alkyl phenols with alkylene oxides, especially ethylene oxide either alone or with propylene oxide. Specific nonionic detergent compounds are C₆ to C₂₂ alkyl phenoethylene oxide condensates, generally 5 to 25 EO, i.e. 5 to 25 units of ethylene oxide per molecule, and the condensation products of aliphatic C₈ to C₁₈ primary or secondary linear or branched alcohols with ethylene oxide, generally 5 to 40 EO.

[0036] Suitable anionic detergent compounds which may be used are usually watersoluble alkali metal salts of organic sulphates and sulphonates having alkyl radicals containing from about 8 to about 22 carbon atoms, the term alkyl being used to include the alkyl portion of higher acyl radicals. Examples of suitable synthetic anionic detergent compounds are sodium and potassium alkyl sulphates, especially those obtained by sulphating higher C₈ to C₁₈ alcohols, produced for example from tallow or coconut oil, sodium and potassium alkyl C₉ to C₂₀ benzene sulphonates, particularly sodium linear secondary alkyl C₁₀ to C₁₅ benzene sulphonates; and sodium alkyl glyceryl ether sulphates, especially those ethers of the higher alcohols derived from tallow or coconut oil and synthetic alcohols derived from petroleum. The preferred anionic detergent compounds are sodium C₁₁ to C₁₅ alkyl benzene sulphonates and sodium C₁₂ to C₁₈ alkyl sulphates. Further anionic surfactants include fatty acid-based soaps containing between C₈-C₂₆ carbon atoms. Also applicable are surfactants such as those described in EP-A-328 177 (Unilever), which show resistance to salting-out, the alkyl polyglycoside surfactants described in EP-A-070 074, and alkyl monoglycosides.

[0037] The total amount of surfactant present in the liquid composition is from 5 to 65 wt.%. Preferably the total amount of surfactant is from 10 to 65 wt.%, preferably from 15 to 50 wt.%.

[0038] Other surfactants such as amphoteric, zwitterionic and cationic surfactants may also be present in addition to the aforementioned nonionic and anionic surfactants.

Optional Ingredients

[0039] The laundry composition may additionally comprise one or more of the following optional ingredients.

BUILDERS OR COMPLEXING AGENTS

[0040] The laundry composition optionally comprises from 1 to 50 wt.% of a builder. Preferably the builder is present at a level of from 1 to 40 wt.%.

[0041] Builder materials may be selected from 1) calcium sequestrant materials, 2) precipitating materials, 3) calcium ion-exchange materials and 4) mixtures thereof.

[0042] It is preferred that when an insoluble inorganic builder, e.g., zeolite is used, the size is in the range 0.1 to 10 microns (as measured by The Mastersizer 2000 particle size analyzer using laser diffraction ex Malvern™).

[0043] Examples of calcium sequestrant builder materials include alkali metal polyphosphates, such as sodium tripolyphosphate and organic sequestrants, such as ethylene diamine tetra-acetic acid.

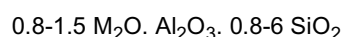
[0044] Examples of precipitating builder materials include sodium orthophosphate and sodium carbonate.

[0045] Examples of calcium ion-exchange builder materials include the various types of water-insoluble crystalline or amorphous aluminosilicates, of which zeolites are the best known representatives, e.g. zeolite A, zeolite B (also known as zeolite P), zeolite C, zeolite X, zeolite Y and also the zeolite P-type as described in EP-A-0,384,070.

[0046] The composition may also contain 0-50 wt.% of a builder or complexing agent such as ethylenediaminetetraacetic acid, diethylenetriamine-pentaacetic acid, alkyl- or alkenylsuccinic acid, nitrilotriacetic acid or the other builders mentioned below. Many builders are also bleach-stabilising agents by virtue of their ability to complex metal ions.

[0047] Zeolite and carbonate (carbonate (including bicarbonate and sesquicarbonate) are preferred builders.

[0048] The composition may contain as builder a crystalline aluminosilicate, preferably an alkali metal aluminosilicate, more preferably a sodium aluminosilicate. This is typically present at a level of less than 15 wt.%. Aluminosilicates are materials having the general formula:



where M is a monovalent cation, preferably sodium. These materials contain some bound water and are required to have a calcium ion exchange capacity of at least 50 mg CaO/g. The preferred sodium aluminosilicates contain 1.5-3.5 SiO₂ units in the formula above. They can be prepared readily by reaction between sodium silicate and sodium aluminate, as amply described in the literature. The ratio of surfactants to aluminosilicate (where present) is preferably greater than 5:2, more preferably greater than 3:1.

[0049] Alternatively, or additionally to the aluminosilicate builders, phosphate builders may be used. In this art the

term 'phosphate' embraces diphosphate, triphosphate, and phosphonate species. Other forms of builder include silicates, such as soluble silicates, metasilicates, layered silicates (e.g. SKS-6 from Hoechst).

[0050] Preferably the laundry detergent formulation is a non-phosphate built laundry detergent formulation, i.e., contains less than 1 wt.% of phosphate.

SHADING AGENT

[0051] The laundry composition preferably comprises a blue or violet shading agent in the range from 0.0001 to 0.01 wt.%. The shading agents reduce the perception of damage to many coloured garments and increase whiteness of white garments.

[0052] The shading agents are preferably selected from blue and violet dyes of the solvent, disperse, basic, direct and acid type listed in the Colour Index (Society of Dyers and Colourists and American Association of Textile Chemists and Colorists 2002).

[0053] Preferably a direct violet or direct blue dyes is present. Preferably the dyes are *bis*-azo, *tris*-azo dyes or triphen-dioxazine dye. The carcinogenic benzidine based dyes are not preferred.

FLUORESCENT AGENT

[0054] The laundry composition preferably comprises a fluorescent agent (optical brightener). Fluorescent agents are well known and many such fluorescent agents are available commercially. Usually, these fluorescent agents are supplied and used in the form of their alkali metal salts, for example, the sodium salts. The total amount of the fluorescent agent or agents used in the composition is generally from 0.005 to 2 wt.%, more preferably 0.01 to 0.1 wt.%. Preferred classes of fluorescer are: Di-styryl biphenyl compounds, e.g. Tinopal (Trade Mark) CBS-X, Di-amine stilbene di-sulphonic acid compounds, e.g. Tinopal DMS pure Xtra and Blankophor (Trade Mark) HRH, and Pyrazoline compounds, e.g. Blankophor SN. Preferred fluorescers are: sodium 2-(4-styryl-3-sulfophenyl)-2H-naphthol[1,2-d]trazole, disodium 4,4'-bis{[(4-anilino-6-(N methyl-N-2 hydroxyethyl) amino 1,3,5-triazin-2-yl)]amino}stilbene-2-2' disulfonate, disodium 4,4'-bis{[(4-anilino-6-morpholino-1,3,5-triazin-2-yl)]amino} stilbene-2-2' disulfonate, and disodium 4,4'-bis(2-sulfoslyryl)biphenyl.

PERFUME

[0055] Preferably the laundry composition comprises a perfume. The perfume is preferably in the range from 0.001 to 3 wt.%, most preferably 0.1 to 1 wt.%. Many suitable examples of perfumes are provided in the CTFA (Cosmetic, Toiletry and Fragrance Association) 1992 International Buyers Guide, published by CFTA Publications and OPD 1993 Chemicals Buyers Directory 80th Annual Edition, published by Schnell Publishing Co.

[0056] It is commonplace for a plurality of perfume components to be present in a formulation. In the compositions of the present invention it is envisaged that there will be four or more, preferably five or more, more preferably six or more or even seven or more different perfume components.

[0057] In perfume mixtures preferably 15 to 25 wt.% are top notes. Top notes are defined by Poucher (Journal of the Society of Cosmetic Chemists 6(2):80 [1955]). Preferred top-notes are selected from citrus oils, linalool, linalyl acetate, lavender, dihydromyrcenol, rose oxide and cis-3-hexanol.

[0058] Perfume and top note may be used to cue the fabric care benefit of the invention.

[0059] It is preferred that the laundry treatment composition does not contain a peroxygen bleach, e.g., sodium percarbonate, sodium perborate, and peracid.

POLYMERS

[0060] The laundry composition may comprise one or more polymers. Examples are carboxymethylcellulose, poly(ethylene glycol), poly(vinyl alcohol), polycarboxylates such as polyacrylates, maleic/acrylic acid copolymers, lauryl methacrylate/acrylic acid copolymers, and cationic polysaccharide-based polymers.

HYDROTROBE

[0061] A liquid detergent composition may optionally include a hydrotrope, which can prevent liquid crystal formation. The addition of the hydrotrope thus aids the clarity/transparency of the composition. Suitable hydrotropes include but are not limited to propylene glycol, ethanol, urea, salts of benzene sulphonate, toluene sulphonate, xylene sulphonate or cumene sulphonate. Suitable salts include but are not limited to sodium, potassium, ammonium, monoethanolamine, triethanolamine. Preferably, the hydrotrope is selected from the group consisting of propylene glycol, xylene sulfonate, ethanol, and urea to provide optimum performance. The amount of the hydrotrope is generally in the range of from 0 to

30%, preferably from 0.5 to 30%, more preferably from 0.5 to 30%, most preferably from 1 to 15%.

Examples

Example 1 Improved fabric softening as a result of emulsification of aminosilicone oil using PET-POET polymer

Synthesis of polyethylene terephthalate-co-polyoxyethylene terephthalate copolymer (PET-POET)

[0062] PET-18000 was a polyethylene terephthalate ($M_n = 18,000$) from Shanghai Lianji Synthetic Fiber Company; poly (ethylene glycol) 20,000 ($M_n = 20,000$) was purchased from Fluka; antimony oxide (Sb_2O_3) calcium acetate and 2, 6-ditert-butyl-4-methylphenol (DBMP) were supplied by Sinopharm Chemical Reagent Co., Ltd. All the reagents were used as received without further purification.

[0063] The PET-POET sample was prepared utilising a stainless steel reaction kettle which offers mechanical stirring, fine thermo-controlling and high vacuum level. The reaction kettle was supplied by Weihai Auto-control Reaction Kettle Ltd.

[0064] 80g of PEG of 20,000 molecular weight and 5g of PET-18000 were used for the transesterification polymerisation. Sb_2O_3 (20mg) and calcium acetate (20mg) were utilised as the catalyst and 2,6-ditert-butyl-4-methylphenol (80mg) as antioxidant. Before heating the reaction mixture, vacuum was applied to the kettle, followed with re-filling with nitrogen. This process was repeated three times; and then under vacuum level below zero mmHg and mechanical stirring at 50 rpm, the temperature was gradually elevated to the reaction temperature of around 260 degrees centigrade and maintained for 5 hours. Transesterification reaction took place with the release of ethylene glycol. The product was taken out of the kettle with a spatula while it was hot, at about 150°C. The viscous polymer cooled down to a hard solid of $M_n = 30,000$.

Emulsification of aminosilicone with PET-POET

[0065] Aminosilicone oil (0.1g of Hansa ASR 7020 ex. CHT) was added to a 14ml capacity squat form glass vial along with 9.9g of emulsifier solution (a 1% solution of PET-POET in deionized water) and mixed using a high shear stirrer (VWR VDI12 microhomogenizer with S12N-12S tool on setting '5') for 90 seconds.

Comparative Example A

[0066] A comparative (control) sample was prepared using a procedure identical to the above, except that the 1 % emulsifier solution was prepared using a blend of non-ionic surfactants (85:15 ratio of Neodol 25-7 (primary alcohol ethoxylate ex. Shell Chemicals) to Synperonic A20 (POE primary alcohol ex. Croda) by weight respectively).

Model Wash Evaluation

a) Preparation of wash liquor:

[0067] The wash liquor was prepared by diluting Persil® Small and Mighty (concentrated liquid detergent) with local medium/soft water (typically 6-18°FH (French water hardness)) to achieve a 2.5g/l concentration. 50ml of wash liquor was added to each 500ml Linitest pot.

b) Simulated Wash (Linitest laboratory scale washing machine Ex. Heraeus)

[0068] 0.313g of 1% aminosilicone emulsion using PET-POET or non-ionic surfactant blend (comparative example A) as emulsifier, were added to the Linitest pots containing wash liquor and agitated slightly to ensure mixing.

[0069] A sample of knitted polyester measuring 21 cm by 21 cm was placed into each Linitest pot containing the wash liquor and aminosilicone emulsions, and the pots were sealed. The Linitest pots were attached to the Linitest cradle and rotated for 45 minutes at 40°C to simulate the main wash.

[0070] At the end of the main wash simulation, each Linitest pot was emptied of wash liquor. An 85ml aliquot of water was added to each pot and the pots were resealed and returned to the Linitest to rotate for a further 10 minutes to simulate rinsing. Rinsing was performed at the same temperature as the mainwash. This was repeated one further time, so that each fabric had experienced two simulated rinses.

[0071] After rinsing, the fabrics were squeezed to remove excess liquid and were line dried at ambient temperature.

[0072] Washes were done in quadruplicate for each sample and results averaged.

Mechanical Testing Of Fabric Test Samples

a) Fabric sample preparation

[0073] Samples that underwent model wash evaluation were trimmed to 20cm by 20cm in size, then allowed to condition for 24 hours in a room with controlled temperature and humidity (20°C; 65% RH) prior to mechanical testing.

b) Evaluation of fabric mechanical properties related to tactile performance

[0074] An indication of increased levels of deposition of silicone based materials to fabric substrates can be obtained by evaluating the change in fabric mechanical properties caused by lubrication of fibres and yarns due to the presence of silicone.

[0075] Several methods exist to relate fabric mechanical properties to fabric handle. An internationally recognised method is the Kawabata Evaluation System (KES). In particular one fabric parameter that has been found to relate to tactile properties such as softness and flexibility is the fabric shear hysteresis. In this example, an automated apparatus based on the KES was used to determine fabric shear hysteresis. The fabrics were oriented with the courses perpendicular to the clamping jaws.

[0076] A lower value of shear hysteresis (2HG3 parameter) corresponds to increased lubrication/softening due to improved silicone deposition.

Table 1: Fabric shear hysteresis results

Fabric treatment	Shear hysteresis (2HG3)
Liquid detergent only (no silicone emulsion)	2.47
Comparative example A	2.47
PET-POET emulsified aminosilicone oil	1.59

[0077] A reduction in fabric shear hysteresis - which corresponds to increased softening due to increased deposition of the silicone was observed due to emulsification of aminosilicone oil with PET-POET polymer. This result is an improvement in comparison to the known emulsification method using nonionic surfactant.

Claims

1. An emulsion comprising:-

- (a) a liquid droplet particle comprising a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate and a silicone liquid; and,
- (b) an aqueous continuous phase.

2. An emulsion according to claim 1 wherein the copolymer of polyethylene terephthalate and polyoxyethylene terephthalate has a molecular weight of from 5000 to 50,000 Daltons, preferably from 20,000 to 50,000 Daltons.

3. An emulsion according to claim 2, wherein the size of the liquid droplet is from 0.5 to 20 μm .

4. An emulsion according to any preceding claim, comprising from 30 to 99.9 wt.%, preferably from 40 to 99 wt.% of the aqueous continuous phase.

5. An emulsion according to any preceding claim, wherein the silicone liquid has a viscosity of from 5,000 to 100,000 cP.

6. A process to make the emulsion of any one of claims 1 to 5, comprising mixing together a silicone liquid, a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate and water.

7. A process according to claim 6, wherein the copolymer of polyethylene terephthalate and polyoxyethylene terephthalate is first dissolved in water prior to addition to the silicone oil.

8. A laundry composition comprising:-

- a) from 5 to 65 wt.% of a surfactant; and,
- b) from 0.5 to 30 wt.% of an emulsion according to any one of claims 1 to 5.

9. Use of a copolymer of polyethylene terephthalate and polyoxyethylene terephthalate to increase the level of deposition of a silicone onto fabric.

Patentansprüche

1. Emulsion,
die Folgendes aufweist:

- a) Teilchen in Form von Flüssigkeitstropfen, die ein Copolymer von Polyethylenterephthalat und Polyoxyethylenterephthalat und ein flüssiges Silicon aufweisen; und
- b) eine wässrige kontinuierliche Phase.

2. Emulsion nach Anspruch 1,
wobei das Copolymer von Polyethylenterephthalat und Polyoxyethylenterephthalat ein Molekulargewicht von 5000 bis 50000 Dalton, vorzugsweise von 20000 bis 50000 Dalton aufweist.

3. Emulsion nach Anspruch 2,
wobei die Größe der Flüssigkeitstropfen 0,5 bis 20 µm beträgt.

4. Emulsion nach einem der vorstehenden Ansprüche,
die 30 bis 99,9 Gew.-%, vorzugsweise 40 bis 99 Gew.-% der wässrigen kontinuierlichen Phase aufweist.

5. Emulsion nach einem der vorstehenden Ansprüche,
wobei das flüssige Silicon eine Viskosität von 5000 bis 100000 cP aufweist.

6. Verfahren zum Herstellen einer Emulsion nach einem der Ansprüche 1 bis 5, bei dem ein flüssiges Silicon, ein Copolymer von Polyethylenterephthalat und Polyoxyethylenterephthalat und Wasser miteinander vermischt werden.

7. Verfahren nach Anspruch 6,
wobei das Copolymer von Polyethylenterephthalat und Polyoxyethylenterephthalat vor der Zugabe des Siliconöls zuerst in Wasser gelöst wird.

8. Waschmittelzusammensetzung,
die Folgendes aufweist:

- a) 5 bis 65 Gew.-% eines Tensids; und
- b) 0,5 bis 30 Gew.-% einer Emulsion nach einem der Ansprüche 1 bis 5.

9. Verwendung eines Copolymers von Polyethylenterephthalat und Polyoxyethylenterephthalat, um die auf einem Textilerzeugnis abgelagerte Siliconmenge zu erhöhen.

Revendications

1. Emulsion comprenant :

- (a) une particule de gouttelette liquide comprenant un copolymère de polyéthylène téréphtalate et de polyoxyéthylène téréphtalate et un liquide silicone ; et
- (b) une phase continue aqueuse.

2. Emulsion selon la revendication 1 où le copolymère de polyéthylène téréphtalate et de polyoxyéthylène téréphtalate a une masse moléculaire de 5 000 à 50 000 Daltons, de préférence de 20 000 à 50 000 Daltons.

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3. Emulsion selon la revendication 2, où la taille de la gouttelette liquide est de 0,5 à 20 μm .
4. Emulsion selon l'une quelconque des revendications précédentes, comprenant de 30 à 99,9 % en poids, de préférence de 40 à 99 % en poids, de la phase continue aqueuse.
5. Emulsion selon l'une quelconque des revendications précédentes, où le liquide silicone a une viscosité de 5 000 à 100 000 cP.
6. Procédé pour produire l'émulsion selon l'une quelconque des revendications 1 à 5, comprenant le mélange d'un liquide silicone, d'un copolymère de polyéthylène téréphtalate et de polyoxyéthylène téréphtalate et d'eau.
7. Procédé selon la revendication 6, où le copolymère de polyéthylène téréphtalate et de polyoxyéthylène téréphtalate est d'abord dissous dans l'eau avant l'addition à l'huile de silicone.
8. Composition de blanchissage comprenant :
- a) de 5 à 65 % en poids d'un tensioactif ; et
 - b) de 0,5 à 30 % en poids d'une émulsion selon l'une quelconque des revendications 1 à 5.
9. Utilisation d'un copolymère de polyéthylène téréphtalate et de polyoxyéthylène téréphtalate pour augmenter le niveau de dépôt d'un silicone sur un tissu.

REFERENCES CITED IN THE DESCRIPTION

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