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(54) **ADDITIVE COMPOSITION WITH INTEGRATED ACTION**

(57) A liquid additive composition with integrated action, said composition comprising
i) a cleaning/stain-removing component consisting of:
a) at least one nonionic surfactant;
b) at least one performance booster; and
c) at least one anionic surfactant;
ii) a softening component selected from quaternary silicones, amino-modified silicones and guar gum and mixtures thereof;

iii) a sensory component comprising fragrance microcapsules and perfuming oil;
iv) an acid with a pK lower than 6 as pH regulator and buffer, and
v) water

Use of the composition as a softening, perfuming, cleaning and/or stain-removing agent, by addition in the final washing/rinsing phase of garments.

A process for preparing the composition.

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Description

[0001] The present invention relates to an additive composition with integrated action.

[0002] The present invention falls within the technical field of additives for washings in washing-machines, i.e. products that are substantially washing adjuvants that integrate the use of detergents, with a specific function, different from the cleaning action itself of detergents: examples of these additives are stain-removing additives, softeners, colour additives, whiteners, anti-lime additives, antibacterial agents, bleaches, perfuming agents, etc. etc.

[0003] Additive products to be used in addition to the detergent and that can exert various functions are in fact known and widely marketed.

[0004] These additive products are added according to their characteristics and function at different times/stages of the washing process of clothes in a washing machine.

[0005] Certain additives are added in the pre-washing or washing phase, as is the case for example of stain-removing additives, bleaches, anti-lime additives, antibacterial agents, whereas other additive products are added in the final washing phase, i.e. in the last rinse: this is the case of softeners and, in some cases, also antibacterial agents.

[0006] As previously indicated, the different addition time of the additive product depends on its physico-chemical characteristics and its function: it is clear, in fact, that a softener must be added in the final washing stage to prevent losing or minimizing the desired softening and perfuming effect due to the subsequent rinsing phases of the clothes. More specifically, a softener acts in the following way: the molecules of the softening product become bound to the fibers of the fabrics, creating a thin film and the final effect is a greater softness of the garment, combined with its possible fragrance and, again thanks to the composition of the softening product and reduction in friction between the fibers, said additive also facilitates the ironing of the garment.

[0007] The use of the softening product also reduces the static electricity of the freshly washed garments.

[0008] Softeners are therefore substantially washing adjuvants that integrate the use of detergents. Historically, the composition of softeners comprises the use of quaternary ammonium compounds with one or more fatty chains. Examples of softening additives used in the past are DSDMAC (distearyldimethylammonium chloride), DHTDMAC (di-hydrogenated tallow dimethylammonium chloride). Nowadays, the composition of all the main softeners on the market comprises esterquat (inci definition: Distearoylethyl Hydroxyethylmonium Methosulfate), as essential component: these are positively charged softening molecules, obtained by the esterification of ethoxylated quaternized amines with long-chain fatty acids. The other components are almost always additives, fragrances, thickeners or pearling agents, dyes, etc.

[0009] It is also evident that the moment of use of a stain-removing additive, again referring to a washing adjuvant that integrates the use of detergents, is substantially different from that of the softening additive described above.

[0010] A stain-removing additive is in fact generally used by applying it directly to the garment and specifically on the stain to be treated, before washing, or it is generally added as additive in the pre-washing or washing phase in the washing cycle of the washing machine.

[0011] The composition of liquid stain-removing additives is generally based on an appropriate mixture of nonionic, anionic, amphoteric surfactants, amine oxide, enzymes or hydrogen peroxide or other oxidizing agents, such as, for example, sodium hypochlorite (the latter only to be used on white garments).

[0012] In order to facilitate the task of the end user, various products called "multifunction" or with integrated action have been recently introduced onto the market, i.e. products characterized by contemporaneously exerting two or more functions among those previously listed: colour and anti-lime additives, stain-removers and bleaches, softeners and optical whitening agents, etc., can in fact be found on the market, in addition to the "obvious" softening and perfuming additive.

[0013] The production of these "multifunction" compositions or additives is not as easy and trivial as might seem to the eye of a simple user. Skilled persons in the field, in fact, are well aware of the difficulties encountered in producing these additives as the ingredients used for one function are often in conflict with those that exert other functions and their combination can lead to a partial/total inactivity of the end-product in one or more of the desired functions.

[0014] It is also evident that the production of an effective "multifunction" additive has a further fundamental basic requirement: not only must the physico-chemical characteristics of the various components be such as to allow the stability and functioning of the final additive for each function desired, but the functions of the "multifunction" additive must also be contemporaneous, i.e. they must be functions that are exerted in the same washing phase(s). The multifunction additives currently on the market are in fact specifically additives that combine two or more additive functions which, in the past, were added individually and separately in the same washing stage of the garment.

[0015] Multifunction additives that combine the softening action to be exerted in the last rinsing phase with the stain-removing or bleaching action (for example), which, by their very nature, are exerted in different phases of the washing cycle (pre-washing or actual washing), are neither known nor commercialized: these additives with a stain-removing or bleaching action are in fact ineffective if added in the final rinsing phase. Furthermore, on the basis of the compositional characteristics of softening additives which, as previously indicated, have esterquat as basic ingredient, their co-existence with the stain-removing/cleaning components of stain-removing additives which would completely deactivate the sof-

tening action of the softening additive based on esterquat, appears impossible.

[0016] The Applicant has now surprisingly found a liquid additive composition with integrated action, which overcomes the drawbacks of the state of the art.

[0017] The main objective of the present invention is therefore to find a liquid additive composition with integrated action, that can simultaneously exert a softening and cleaning/stain-removing function.

[0018] A further objective of the present invention is also to find a liquid additive composition with integrated action, that can simultaneously exert a softening and cleaning/stain-removing function when added in the final rinsing phase of the washing cycle of a washing machine, i.e. when added to the compartment/space of the softener in the washing machine.

[0019] The object of the present invention therefore relates to a liquid additive composition with integrated action, said composition being characterised in that it comprises:

i) a cleaning/stain-removing component consisting of:

- a) at least one nonionic surfactant;
- b) at least one performance booster; and
- c) at least one anionic surfactant;

ii) a softening component selected from quaternary silicones, amino-modified silicones and guar gum or its derivatives and mixtures thereof;

iii) a sensory component comprising fragrance microcapsules and perfuming oil;

iv) an acid with a pK lower than 6 as pH regulator and buffer, preferably citric acid, and

v) water.

[0020] The liquid additive composition with integrated action preferably has a pH lower than 6.

[0021] The cleaning/stain-removing component (i) of the liquid additive composition with integrated action, according to the present invention, preferably consists of:

a) a nonionic surfactant which is a C₁₀-C₁₆ ethoxylated alcohol in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action, preferably in a quantity ranging from 0.1% to 5% by weight;

b) a performance booster selected from an alkoxyated polyethyleneimine or an alkyl-(hydroxyethyl) dimethyl ammonium chloride and mixtures thereof in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action;

c) an anionic surfactant which is sodium laureth sulfate (LES) in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action, preferably in a quantity ranging from 0.1% to 5% by weight; wherein the maximum total amount of active components a) b) and c) is equal to 15% by weight with respect to the total weight of the additive composition with integrated action.

[0022] Even more preferably, the cleaning/stain-removing component consists, as performance booster, of a mixture of alkoxyated polyethyleneimine and alkyl-(hydroxyethyl) dimethyl ammonium chloride in a quantity ranging from 0.1% to 5% by weight, even more preferably in a quantity equal to 2.5% by weight.

[0023] The cleaning/stain-removing component preferably comprises an anionic surfactant in a quantity ranging from 0.1% to 5% by weight and a nonionic surfactant in a quantity ranging from 0.1% to 5% by weight.

[0024] The performance booster ensures a cleaning/stain-removing action with a reduced percentage of active ingredients in the composition, maximizing the effectiveness of said surfactants.

[0025] The effective weight ratio between the performance booster b) and the anionic surfactant c) is preferably higher than 1:1 and preferably equal to 5:1.

[0026] The cleaning/stain-removing component (i) of the liquid additive composition with integrated action according to the present invention consists of C₁₀-C₁₆ ethoxylated alcohol; a mixture of an alkoxyated polyethyleneimine and an aqueous solution of C₁₂- and C₁₄-alkyl (hydroxyethyl) dimethyl chlorides; and sodium laureth sulfate.

[0027] The softening component (ii) of the liquid additive composition with integrated action according to the present invention, selected from quaternary silicones, amino-modified silicones and guar gum or its derivatives and mixtures thereof, consists of a mixture of at least two components selected from quaternary silicones, amino-modified silicones and guar gum or its derivatives, and is preferably a mixture of diquaternary polydimethyldisiloxane, amino-modified polysiloxane and modified cationic guar gum, wherein each of said components forming the softening component is present in a quantity ranging from 0.1 to 10% by weight with respect to the total weight of the additive composition with integrated action.

[0028] Esterquat which, as previously indicated, is the base component of all major softeners on the market, is completely absent.

[0029] The sensory component (iii) of the liquid additive composition with integrated action according to the present invention, preferably consists of a suspension of fragrance microcapsules and perfuming oil. A part of the sensory component is present in an encapsulated form to allow a greater duration of the fragrance: the fragrance capsules in fact adhere to the fabric and the perfume lasts with time on the dry garment.

[0030] In order to stabilize the sensory component, the composition according to the present invention can also comprise a cellulose derivative or an acrylamide-based cationic polymer and mixtures thereof, preferably a mixture of a cellulose derivative such as carboxymethyl-cellulose or methylhydroxypropyl-cellulose, even more preferably methylhydroxy-propylcellulose as viscosifying agent and an acrylamide polymer as suspending agent, wherein both the viscosifying agent and the suspending agent are present in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action.

[0031] The sensory component (iii) of the liquid additive composition with integrated action according to the present invention, can also comprise a dye and an opacifying agent which affect the aesthetic features of the end-product and are included in said sensory component, comprising all the so-called sensory ingredients.

[0032] The presence as component (iv) of an acid with a pK lower than 6, as pH regulator and buffer, preferably citric acid, allows the pH of the additive composition with integrated action according to the present invention to be adjusted: the pH is in fact lower than 6, preferably lower than 5, even more preferably lower than 3.5.

[0033] The liquid additive composition with integrated action according to the present invention can also comprise, as minor components, dyes and/or preservatives and/or disinfecting and/or antifoaming agents and/or stabilizers and/or enzymes, selected from those commonly known to skilled persons in the field.

[0034] The liquid additive composition with integrated action according to the present invention preferably comprises:

- (i) the cleaning/stain-removing component, in a quantity ranging from 0.4 to 10% by weight, preferably ranging from 3 to 7% by weight with respect to the total weight of the additive composition;
- ii) the softening component, in a quantity ranging from 0.3 to 10% by weight, preferably from 0.6 to 0.8% by weight with respect to the total weight of the additive composition;
- iii) the sensory component comprises fragrance microcapsules, in a quantity ranging from 0.1 to 5% by weight, preferably ranging from 0.5 to 1% by weight with respect to the total weight of the additive composition and perfuming oil, in a quantity ranging from 0.1 to 10% by weight, and preferably from 0.5 to 3% by weight with respect to the total weight of the composition;
- iv) an acid with a pK lower than 6 as pH regulator and buffer, in a quantity ranging from 0.01% to 0.5% by weight, preferably ranging from 0.25% to 0.45% by weight with respect to the total weight of the additive composition;
- v) water complement to 100.

[0035] A preferred liquid additive composition with integrated action according to the present invention, comprises:

i) the cleaning/stain-removing component consisting of:

- a) a C₁₀-C₁₆ ethoxylated alcohol in a quantity equal to 1% by weight, as nonionic surfactant;
- b) a mixture of alkoxyated polyethyleneimine in a quantity equal to 1.5% by weight and an aqueous solution of C₁₂- and C₁₄-alkyl-(hydroxyethyl) dimethyl chlorides in a quantity equal to 1% by weight, as performance booster;
- c) sodium laureth sulfate in a quantity equal to 0.5% by weight, as anionic surfactant;

ii) the softening component consists of a mixture of diquatary polydimethylsiloxane in a quantity equal to 0.35% by weight, amino-modified polysiloxane in a quantity equal to 0.4% by weight and modified cationic guar gum in a quantity equal to 0.15% by weight;

iii) a sensory component comprising perfuming oil in a quantity equal to 0.45% by weight, fragrance microcapsules in a quantity equal to 0.12% by weight, dye in a quantity equal to 0.001% by weight and an opacifying agent, preferably an acrylic/styrene copolymer, in a quantity equal to 0.1% by weight;

iv) citric acid in a quantity equal to 0.35% by weight, as pH regulator;

v) water, complement to 100,

vi) polydimethylsiloxane in a quantity equal to 0.01% by weight, as antifoaming agent; a preservative agent, preferably a mixture of 5-chloro-2-methyl-2H-isothiazol-3-one, 2-methyl-2H-isothiazol-3-one such as, for example, Preventol D7 in a quantity equal to 0.05% by weight, as preservative, antimicrobial agent, a mixture of methylhydroxypropyl-cellulose in a quantity equal to 0.3% by weight as viscosifying agent and an acrylamide-based polymer in a quantity ranging from 0.2 to 0.8% by weight, as suspending agent; and with a pH equal to about 3.0.

[0036] The liquid additive composition with integrated action according to the present invention previously described has the considerable and surprising advantage of combining both the softening/perfuming function and the cleaning/stain-removing function in a single additive, a combination which was previously considered impossible, not only for reasons of incompatibility of the ingredients that exert single functions in known "single" additives, but also due to functioning times in the washing cycle that are completely different for the various additives.

[0037] A cleaning/stain-removing additive according to the known art, in fact, necessarily requires washing times, temperatures and dilutions that are completely different from the times, temperatures and dilutions required by a softening/perfuming additive which is added in the last rinse of the whole washing cycle.

[0038] It is in fact completely unexpected and surprising that the additive composition with integrated action according to the present invention, when added in the last rinse, is also capable of exerting its specific cleaning/stain-removing function, i.e. capable of effectively ensuring a cleaning action under said time, temperature and dilution conditions, without simultaneously annulling the softening/perfuming action.

[0039] A further object of the present invention relates to the use of said liquid additive composition with integrated action, as softening, perfuming, cleaning and/or stain-removing agent, by adding the additive composition in the final washing stage of one or more garments and, more specifically, by addition in the last rinsing phase. This addition is preferably effected by inserting the liquid additive composition with integrated action according to the present invention in the compartment/space of the washing machine normally used for the insertion of softening additives, i.e. additives adopted by the washing machine in the last rinsing phase.

[0040] Another object of the present invention also relates to the process for preparing the liquid additive composition with integrated action according to the present invention, which requires a precise and specific sequence of steps, carried out in the exact order described and claimed hereunder.

[0041] The process for obtaining a liquid additive composition with integrated action according to the present invention comprises the following operating steps in the order indicated hereunder:

- a) dissolving any preservative components and the sensory component, in water, under stirring and until complete dissolution;
- b) subsequently adding, in succession and awaiting complete dissolution, the performance boosters, the anionic surfactant and an acid with a pK lower than 6;
- c) pre-mixing, separately, the components in powder form, in the absence of water, namely the nonionic surfactant, any fragrance in powder form, the softening component, modified guar gum and/or its derivatives, a possible viscosifying agent such as cellulose and/or derivatives thereof; and adding said pre-mixture, kept under vigorous stirring, to the solution resulting from step b), until complete dissolution;
- d) pre-mixing, separately, a possible anti-foaming agent and the amino-modified polysiloxane softening component, in the presence of water, and adding said pre-mixture to the solution resulting from step c), until complete dissolution;
- e) subsequently adding, in succession and awaiting complete dissolution, the softening component comprising quaternary silicones and possible dyes;
- f) pre-mixing, separately, a possible opacifying agent which is a styrene/acrylic copolymer, and water and adding said pre-mixture, to the solution resulting from step e), until complete dissolution;
- g) subsequently adding, in succession and until complete dissolution, any possible suspending and viscosifying agents and water up to the complement to 100.

[0042] In order to obtain a stable and effective liquid additive composition with integrated action, it is important that the ingredients be added in the order specified and that each subsequent component or pre-mixture be added only when all the other components are perfectly dissolved.

[0043] In particular, the fragrance microcapsules must be added in the first step of the process and directly in water to improve their suspension, dispersion and consequent stability. The order of addition of the surfactants is also important and must be as specified above in order to obtain the maximum homogeneity and facilitate their insertion in the formulation. The citric acid must be added in step b) indicated above, as, if added subsequently, it favours the browning of the bulk. The addition of citric acid before the fragrance, in fact, prevents colour change, increasing the stability, and also facilitates the insertion of the cationic guar gum.

[0044] Step c) for pre-mixing the powders, in the absence of water, with fragrance and nonionic surfactant, is fundamental for homogeneously inserting the same powders into the formulation. Powders in direct contact with water would in fact form clots which are very difficult to dissolve.

[0045] The formation of the subsequent pre-mixture of step d) also allows the amino-modified polysiloxane softening component to begin to become dispersed in water (about 1% by weight), improving the homogeneity of the dispersion of the same in the final additive composition.

[0046] The suspending agent must be added in the final step due to the fact that, as it has both a suspending effect and a viscosifying effect, if it were added in the previous steps, it would jeopardize the homogeneous distribution of all

the other raw materials added subsequently. The water for integrating the volume is added at the end of the process to ensure that there are no residues of suspending agent that have not been perfectly dispersed.

[0047] In addition to the advantages previously indicated, the fundamental advantage of the additive composition with integrated action according to the present invention lies in the fact that, thanks to the particular combination of components forming the additive composition, it is capable of obtaining optimum results in terms of softness and fragrance of the dry garment, exerting a further cleaning action specifically in the final step, as demonstrated in the following examples, with the use of an extremely reduced quantity of surfactant (less than 10% by weight).

[0048] The following examples are provided for purely illustrative purposes.

Example 1

[0049] The composition according to the present invention, having the formulation indicated in the following Table 1, was prepared using the preparation process previously described for liquid additive compositions with integrated action.

Composition Example 1		Ingredients	% w/w
	Nonionic surfactant	Ethoxylated C10-16 alcohol	1
Cleaning/stain-removing component	Performance Booster	Ethoxylated polyethyleneimine	1.5
	Performance Booster	C12-14-(even numbering) alkyl (hydroxyethyl) dimethyl, chlorides in aqueous solution	1
	Anionic surfactant	Sodium Laureth Sulfate	0.5
Softening component		Diquaternary polydimethylsiloxane,	0.35
		Amino-modified polysiloxane	0.4
		Modified cationic Guar Gum	0.15
pH regulator		Citric acid	0.35
Antifoaming agent		polydimethylsiloxane	0.01
Preservative and antibacterial agent		A mixture of: 5-chloro-2-methyl-2H-isothiazol-3-one; 2-methyl-2H-isothiazol-3-one	0.05
Suspending and viscosifying agent		Methylhydroxypropylcellulose	0.3
		Cationic polymer based on acrylamide	0.5
Sensory component	Suspending agent capsules	Styrene/acrylic polymer	0.1
	Dye	Polymer dye	0.001
	Fragrance	Fragrance	0.45
	Capsules	Melamine-based capsules	0.12

[0050] The fragrance used in the present example is Lavander Bloost 01 of Givaudan, but it can be substituted with any other fragrance suitable for the purpose.

[0051] The dye used in a percentage equal to 0.001% is a 50% w/w mixture of Liquitint blue hp and Liquitint pink fb, which can in any case be substituted by any other dye suitable for the purpose.

[0052] The following tests were then effected to demonstrate the softening and cleaning action of the liquid additive composition with integrated action according to the formulation indicated in Table 1.

[0053] As far as the stability with time is concerned, the liquid additive composition of Table 1 remains stable for up to three months of storage test.

[0054] The storage test was effected keeping the product in the final packaging, in an oven, at a controlled temperature of 4°C, 20°C and 40°C respectively, and an evaluation of the products was effected every month in terms of colour, fragrance and visual appearance in general.

[0055] The composition according to the present invention basically maintained its organoleptic features, according to expectations (i.e. variations absent or acceptable vs. standard). The reference/standard sample is the same compo-

sition kept at a constant temperature of 4°C).

[0056] An efficacy and softness test were then also effected.

[0057] The efficacy test or cleaning performance test was carried out using, as comparative product, the commercial product "Omino bianco Gel Additive".

[0058] Results of the cleaning performance tests:

- Type of test
- Agreed protocol AISE 2013 (<https://www.aise.eu/our-activities/standards-and-industry-guidelines/detergent-test-protocol.aspx>) A.I.S.E. Working group "Laundry Detergent Testing" published in November 2013;
- Temperature: 40°C
- Washing cycle: standard for cotton
- Washing machine: Miele Novotronic
- Dosage:
 - Detergent Omino Bianco + Gel additive Omino Bianco in the drawer of the detergent (A)
 - Detergent Omino Bianco + liquid composition of Table 1 in the softener compartment (B)
 - Detergent Omino Bianco + liquid composition of Table 1 in the detergent compartment (C)

[0059] The results are expressed as y index in the enclosed Figure 1: the higher the result, the higher the stain-removing efficacy. It was found that the test with the product Omino Bianco detergent + liquid composition of Table 1 in the softener compartment (B) showed the best effectiveness in terms of stain removing.

[0060] The softness evaluation test has the objective of evaluating the softness profile of the liquid composition of Table 1 with integrated action, using, as comparative product, a softening product Fabuloso® sold by Colgate.

[0061] The softness evaluation test was carried out on a sample of 50 women having the following characteristics: 50% of the women were aged between 25 and 40 years old and 50% of the women were aged between 41 and 61 years old, all from a middle/high social class, and all 100% responsible for purchasing for and cleaning their own homes, 100% users of softeners, and 100% users of or not contrary to liquid additives/gels for laundry.

[0062] The test is carried out on two washed towels, inserting the two different products object of the comparison in the softener compartment and asking the sample of women to put the two towels in order of softness.

[0063] The results are indicated in Figure 2 and are expressed as the sum of the results attributed by the users to the softness of the towels washed with each product (B is the product according to the present invention, whereas D is the comparative product).

[0064] The softness profile of the liquid composition of Table 1 with integrated action proved to be substantially comparable to the softness profile of the commercial product Fabuloso® (the difference is not statistically relevant).

Claims

1. A liquid additive composition with integrated action, said composition being **characterised in that** it comprises

i) a cleaning/stain-removing component consisting of:

- a) at least one nonionic surfactant;
- b) at least one performance booster; and
- c) at least one anionic surfactant;

ii) a softening component selected from quaternary silicones, amino-modified silicones and guar gum or its derivatives and mixtures thereof;

iii) a sensory component comprising fragrance microcapsules and perfuming oil;

iv) an acid with a pK lower than 6 as pH regulator and buffer, preferably citric acid, and
v) water.

2. The additive composition according to claim 1, wherein the cleaning/stain-removing component (i) consists of:

- a) a nonionic surfactant which is a C₁₀-C₁₆ ethoxylated alcohol in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action, preferably in a quantity ranging from 0.1% to 5% by weight;
- b) a performance booster selected from an alkoxylated polyethyleneimine or an alkyl-(hydroxyethyl) dimethyl

ammonium chloride and mixtures thereof in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action, more preferably a mixture of alkoxylated polyethylene amine and alkyl-(hydroxyethyl) dimethyl ammonium chloride in a quantity ranging from 0.1% to 5% by weight, even more preferably in a quantity equal to 2.5% by weight.

c) an anionic surfactant which is sodium laureth sulfate (LES) in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action, preferably in a quantity ranging from 0.1% to 5% by weight; wherein the maximum total amount of active components a) b) and c) is equal to 15% by weight with respect to the total weight of the additive composition with integrated action.

3. The additive composition according to one or more of the previous claims, wherein the cleaning/stain-removing component (i) consists of C₁₀-C₁₆ ethoxylated alcohol; a mixture of an alkoxylated polyethyleneimine and an aqueous solution of C₁₂- and C₁₄-alkyl (hydroxyethyl) dimethyl chlorides; and sodium laureth sulfate.

4. The additive composition according to one or more of the previous claims, wherein the weight ratio between the performance booster b) and the anionic surfactant c) is higher than 1:1 and preferably equal to 5:1.

5. The additive composition according to one or more of the previous claims, wherein the softening component (ii) is selected from quaternary silicones, amino-modified silicones and guar gum or its derivatives and mixtures thereof, and preferably consists of a mixture of at least two components selected from quaternary silicones, amino-modified silicones and guar gum or its derivatives, and it is even more preferably a mixture of diquaternary polydimethyldisiloxane, amino-modified polysiloxane and cationic modified guar gum, wherein each of said components constituting the softening component is present in a quantity ranging from 0.1 to 10% by weight with respect to the total weight of the additive composition with integrated action.

6. The additive composition according to one or more of the previous claims, wherein the sensory component (iii) consists of a suspension of fragrance microcapsules and perfuming oil, possibly also comprising a cellulose derivative or an acrylamide-based cationic polymer and mixtures thereof, preferably a mixture of a cellulose derivative such as carboxymethylcellulose or methylhydroxypropylcellulose, even more preferably methylhydroxypropylcellulose as viscosifying agent and an acrylamide polymer as suspending agent, wherein both the viscosifying agent and the suspending agent are present in a quantity higher than 0.1% by weight with respect to the total weight of the additive composition with integrated action.

7. The additive composition according to one or more of the previous claims, wherein the sensory component (iii) also comprises a dye and an opacifying agent.

8. The additive composition according to one or more of the previous claims, wherein the pH of the composition is lower than 6, preferably lower than 5, even more preferably lower than 3.5.

9. The additive composition according to one or more of the previous claims, which comprises:

(i) the cleaning/stain-removing component, in a quantity ranging from 0.4 to 10% by weight, preferably ranging from 3 to 7% by weight with respect to the total weight of the additive composition;

ii) the softening component, in a quantity ranging from 0.3 to 10% by weight, preferably from 0.6 to 0.8% by weight with respect to the total weight of the additive composition;

iii) the sensory component comprises fragrance microcapsules, in a quantity ranging from 0.1 to 5% by weight, preferably ranging from 0.5 to 1% by weight with respect to the total weight of the additive composition and perfuming oil, in a quantity ranging from 0.1 to 10% by weight, and preferably from 0.5 to 3% by weight with respect to the total weight of the composition;

iv) an acid with a pK lower than 6 as pH regulator and buffer, in a quantity ranging from 0.01% to 0.5% by weight, preferably ranging from 0.25% to 0.45% by weight with respect to the total weight of the additive composition;

v) water, complement to 100.

10. Use of an additive liquid composition with integrated action according to one or more of the claims from 1 to 9, as a softening, perfuming, cleaning and/or stain-removing agent, by the addition of the additive composition in the final washing phase of one or more garments and, more specifically, by addition in the last rinsing phase.

11. A process for preparing the additive liquid composition with integrated action according to one or more of the claims from 1 to 9, comprising the following operating steps in the order indicated:

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a) dissolving any possible preservative components and the sensory component, in water, under stirring and until complete dissolution;

b) subsequently adding, in succession and awaiting complete dissolution, the performance boosters, the anionic surfactant and an acid with a pK lower than 6;

c) pre-mixing, separately, the components in powder form, in the absence of water, namely the nonionic surfactant, a possible fragrance in powder form, the softening component, modified guar gum and/or its derivatives, a possible viscosifying agent such as cellulose and/or derivatives thereof; and adding said pre-mixture, kept under vigorous stirring, to the solution resulting from step b), until complete dissolution;

d) pre-mixing, separately, a possible anti-foaming agent and the amino-modified polysiloxane softening component, in the presence of water, and adding said pre-mixture to the solution resulting from step c), until complete dissolution;

e) subsequently adding, in succession and awaiting complete dissolution, the softening component comprising quaternary silicones and any possible dyes;

f) pre-mixing, separately, a possible opacifying agent which is a styrene/acrylic copolymer, and water and adding said pre-mixture to the solution resulting from step e), until complete dissolution;

g) subsequently adding, in succession and until complete dissolution, any possible suspending and viscosifying agents and water to a complement to 100.

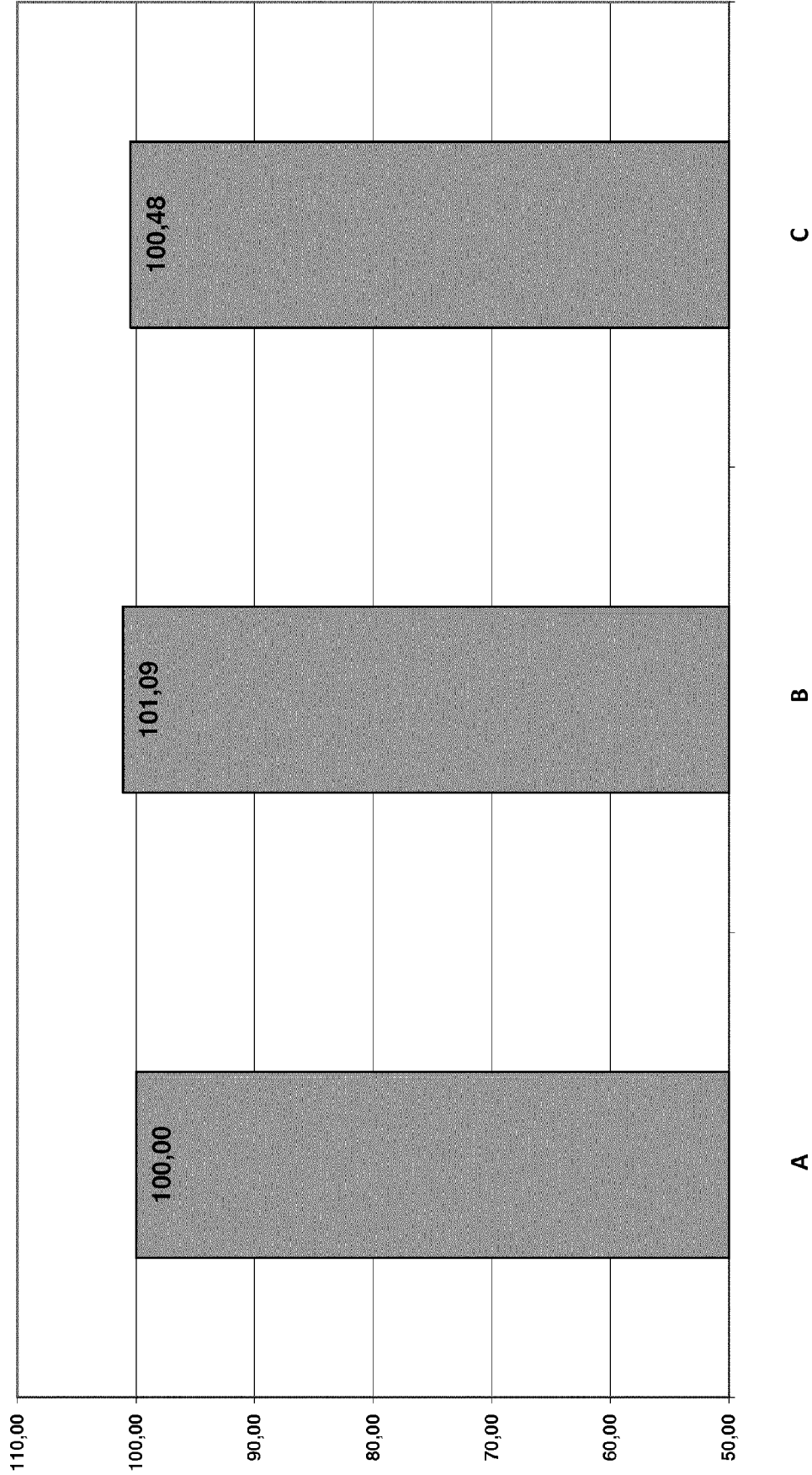


FIG. 1

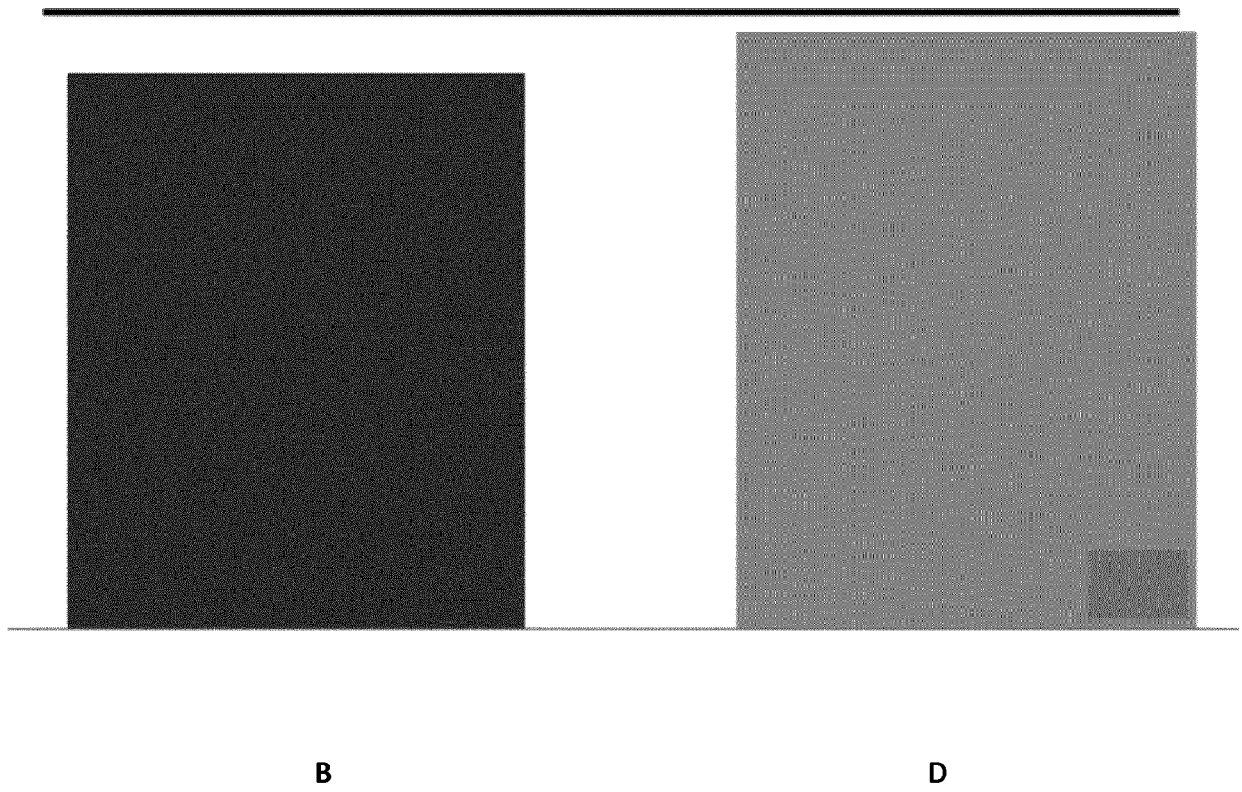


FIG. 2



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