

# PATENT SPECIFICATION

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## (54) LIQUID SYSTEMS

(71) We, UNILEVER LIMITED, a company organised under the laws of Great Britain, of Unilever House, Blackfriars, London E.C.4, England, do hereby declare the invention for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to liquid formulations capable of depositing a material giving a sensorially perceivable effect onto fabric surfaces. The formulation may be used in diluted form and examples of the fabric surfaces are cotton, polyacrylic, polyamide and polyester fibres, wool and flax.

The sensorially perceivable material to be deposited would be selected to provide a desired effect on the surface and examples of this material are fluorescers, whitening agents, perfumes, pigments, dyes, bactericides, antioxidants and antistatic agents.

According to the invention, there is provided a liquid formulation for fabric treatment to provide a sensorially perceivable effect appreciated by the olfactory, visual or auditory senses, comprising.

i) from 0.5% by weight to 50% by weight of a first dispersed phase consisting of particles, being a mixture of

a) from 25% to 99% by weight of the first dispersed phase of a substantially water insoluble non-cationic organic matrix material, having a solubility in the aqueous phase of not more than 200 parts per million;

b) from 0.5% to 25% by weight of the first dispersed phase of a cationic material having a solubility in water not greater than 5 per litre at 25°C; and

c) from 0.5% to 50% by weight of the first dispersed phase of a sensorially perceivable material capable of providing an effect appreciated by the olfactory, visual or auditory senses dispersed in

ii) from 50% to 99.5% by weight of an aqueous phase. Optionally the formulation contains from 0.5% to 30% by weight of the formulation of a second dispersed phase comprising a fabric conditioning material. Preferably the fabric conditioning material is a fabric softener.

The sensorially perceivable material when deposited on a fabric surface is one which is capable of providing an effect appreciated by the olfactory, visual or auditory human senses. Thus a perfume, a preferred material for deposition, is an odiferous composition detected by the olfactory sense, and fluorescers are perceivable by the visual sense. Materials capable of changing the surface of fabric so as to alter the sound made during movement are also included. Some sensorially perceivable materials act directly on a human sense, for example a perfume, while some materials will be perceived indirectly by their action on another substance. An example is a bactericide which can be detected by a reduction in the odour of fabrics due to bactericidal action on micro-organisms. These micro-organisms will collect on the fabrics during use. Another sensorially perceivable material providing a reduction in odour is an anti-oxidant.

It is necessary to ensure that the proportion of soluble cationic material in ionic form which is in the aqueous phase is maintained below a predetermined minimum, because such free cationic material in the liquid phase will preferentially adsorb, or at least adsorb in competition with the particles of the first dispersed

phase. This preference or competition could lead to an inefficient deposition of the dispersed phase on the surface.

One cause of inefficient deposition is charge reversal of the naturally negatively charged surface, which can occur if sufficient positively charged ions are absorbed thereon to be numerically greater than the inherent negative charge of the surface. This reversal occurs with synthetic polymer surfaces, for example textiles of polyacrylics, polyesters and polyamides. These are hydrophobic. On these materials the negative charges are not as abundant as they are on hydrophilic materials, for example cotton. Where the positively charged ions are derived from cationic materials disclosed herein, the alkyl chain on these molecules can absorb onto synthetic polymer surfaces and be bound by hydrophobic interaction. Thus, the binding of these cationic materials does not depend solely upon a charge interaction between the positive centre of the cationic and a negative site on the substrate. This charge reversal effect was demonstrated by measuring zeta potentials by a streaming potential technique on acrylic and cotton textile samples. These samples were immersed in solutions of sodium chloride ( $5 \times 10^{-4}$  molar) at a pH of 6. On addition of cetyl trimethyl ammonium bromide (CTAB) at a strength of  $10^{-4}$  molar the zeta potential for the acrylic sample reversed in sign whereas that of the cotton sample did not. The particle size of the first dispersed phase will usually be in the range from about 0.1 to about 20 micron, more usually about 1.0 to about 20 micron.

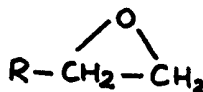
The cationic material in the first dispersed phase is preferably present in an amount of from 2% to 10% of that phase. The first dispersed phase may be present in an amount up to 10%; this range will preferably be used when the matrix material also provides a sensorially appreciable effect. When the formulation contains a second dispersed phase, the first dispersed phase will be preferably present in an amount up to 2%.

The components and parameters for the deposition formulation will now be considered in turn.

#### Organic Matrix Materials

It is necessary for the matrix material to be insoluble, i.e. to have a solubility at 25°C in the liquid phase of not more than 200 parts per million, preferably not more than 50 parts per million. Examples of the matrix materials are primary or secondary fatty alcohols of the formula ROH, e.g. stearyl alcohol, oleyl alcohol, cetyl alcohol and tallow alcohol, hydrocarbons of the formula  $RCH_3$ , e.g. octadecane, eicosane, docosane and tetracosane, aldehydes and ketones of the formula  $RCOR^2$ , e.g. methyl stearyl ketone and stearylaldehyde, fatty acids of the formula RCOOH, e.g. tallow fatty acid, coconut fatty acid, oleic acid, stearic acid and behenic acid, and esters of such acids with the formula  $RCOOR^1$  or  $RCOOR^2$ , e.g. ethyl palmitate and stearyl stearate. In these formulae R and  $R^1$  are saturated or unsaturated aliphatic groups or alkylaryl groups and may be straight or branched chain. The number of carbon atoms will be from 8 to 22, preferably 14 to 22.  $R^2$  is hydrogen or an alkyl group with 1 to 4 carbon atoms.

Other examples of classes of matrix materials which can be used are fatty acid amides with the formula  $RCONR^3R^4$  wherein  $R^3$  and  $R^4$  are each hydrogen, alkyl groups with 1 to 4 carbon atoms,  $-CH_2CH_2OH$ ,  $-(CH_2)_3OH$  or  $-CH(CH_3)CH_2OH$ , e.g. tallow diethanolamide and coconut monoethanolamide. Amines with the formula  $RNR^3R^4$  or  $RR^1NR^3$ , e.g. stearyl diethanolamine and ditallowmethylamine, ethers with the formula  $ROR^1$  or  $ROR^2$ , e.g. stearyl ethyl ether and epoxides with the formula



e.g. stearyl epoxide. The alkylene oxide adducts of fatty alcohols, fatty acids and fatty amides are also usable as the matrix materials. These adducts have the respective formulae  $R(\text{CHR}^5\text{CH}_2\text{O})_n\text{OH}$ ,  $R(\text{CHR}^5\text{CH}_2\text{O})_n\text{COOH}$  and  $R(\text{CHR}^5\text{CH}_2\text{O})_n\text{CONR}^3R^4$ .  $R^5$  is hydrogen or a methyl group and n is chosen to ensure the solubility limits quoted above are not exceeded, e.g. tallow alcohol condensed with an average of 3 moles of ethylene oxide, tallow amide condensed with an average of 5 moles of ethylene oxide and oleic acid condensed with an average of 3 moles of ethylene oxide. Di-basic carboxylic acids are also examples of usable matrix materials.

It will be noted the above list of examples includes carboxylic acids. These materials have a low solubility in the liquid phase and further have a low dissociation constant. In the dispersed phase of the formulation they are able to act as a matrix material.

The organic matrix material will be non-cationic and will preferably be nonionic. The term nonionic defines a material not producing ionic species in contact with the aqueous phase, or producing such species only to a negligible extent.

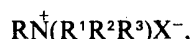
#### Cationic Materials

Suitable materials are found in both the soluble and insoluble classes of cationic materials. Any cationic material used must not have a solubility in water greater than 5 g per litre at 25°C. Thus both cationic surfactants and cationic materials useful as fabric softening agents can be used; the latter are preferred. The class of amphoteric compounds, whose ionic species is dependant on the pH of the liquid phase, can also be used to provide the cationic material with selection of the pH in the system. For amphoteric compounds, as the pH moves to the acid at a specific pH the species becomes cationic and will become effective in the formulation of the present invention.

The less soluble cationic materials are preferred because they will not be so readily leached from the dispersed particles during storage; these materials will preferably have a solubility not greater than about 50 ppm.

Generic examples of soluble cationics are listed below:

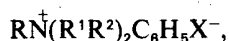
Alkyl quaternary ammonium salts:



e.g. cetyl trimethyl ammonium bromide and tallow trimethyl ammonium bromide.  
Alkyl pyridinium salts:



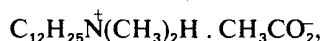
e.g. lauryl pyridinium chloride and cetyl pyridinium chloride.  
Alkylaryl quaternary ammonium salts:



e.g. stearyl dimethyl benzyl ammonium chloride.  
Amine salts:



e.g.



in which R is an alkyl chain of 8 to 22 carbon atoms, preferably 12 to 18 carbon atoms,

R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> are methyl, ethyl or propyl radicals,

X is an anion for example halogen (e.g. chloride or bromide), sulphate, acetate, methosulphate and ethosulphate.

Examples of the insoluble cationics usable are:

Dialkyl quaternary ammonium salts:

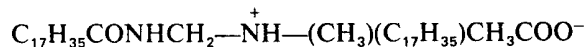


e.g. distearyl dimethyl ammonium chloride, dicoco-dimethyl ammonium chloride and di(2-stearoyloxyethyl)dimethyl ammonium chloride

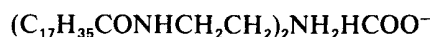
Amine salt derivatives:



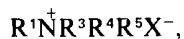
e.g.



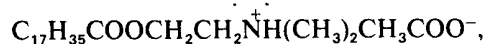
and



Compounds with one long alkyl chain:



e.g.



5 wherein  $R^1$ ,  $R^2$  are alkyl chains of 12 to 25 carbon atoms optionally containing  
amide or ester linkages,  $R^3$ ,  $R^4$  are methyl, ethyl or propyl radicals,  $R^5$  is H, methyl,  
ethyl or propyl,  $X^-$  is an anion, for example  $Cl^-$ ,  $Br^-$ ,  $I^-$ ,  $CH_3SO_4^-$ ,  $C_2H_5SO_4^-$ ,  
10  $CH_3COO^-$ ,  $SO_4^-$ . The above exemplified insoluble cationic materials are fabric  
softeners and may also be used as a second dispersed phase as described in more  
detail below.

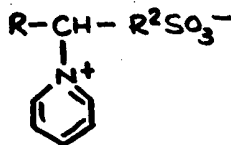
Examples of the amphoteric compounds which are usable are given  
hereunder:

Alkyl sulphobetaines:

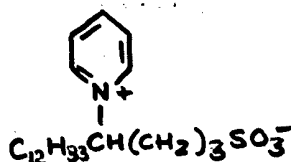
i)  $R-N(R^1)_2R^2SO_3^-$ , e.g. hexadecyl dimethyl ammonio propane sulphonate.

15 ii)  $R-CH(\overset{+}{N}R_3)-R^2SO_3^-$

III



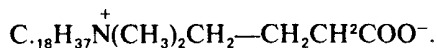
e.g.



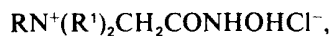
Carboxybetaines:

20  $R-N(R^1)_2R^2COO^-$

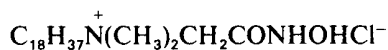
e.g.



Hydroxamic betaines,



25 e.g.



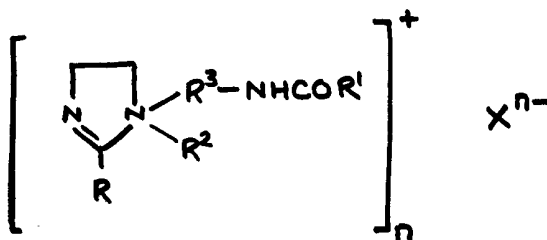
wherein

$R$  is an alkyl chain of 8—22, preferably 12 to 18 carbon atoms,

$R^1$  is methyl or ethyl

30  $R^2$  is a short alkyl chain of 1 to 4 carbon atoms.

Another class of cationic materials usable in the first dispersed phase is based  
on imidazoline and has the general formula



wherein

R and R<sup>1</sup> are each substantially linear aliphatic hydrocarbon groups having from 15 to 24 carbon atoms, R<sup>2</sup> is an alkyl group having from 1 to 4 carbon atoms, R<sup>3</sup> is a divalent alkylene group having from 1 to 4 carbon atoms, and X is an anion and n is an integer equal to the charge on X.

#### Liquid Phase

The liquid phase will be aqueous but will normally contain other materials, for example, short chain alcohols, buffering agents to provide the necessary pH, for example to ensure any amphoteric surfactant or conditioning agent is in the cationic form, and electrolytes may also be present. Emulsifiers, colouring materials, perfumes, bactericides and surface active agents are also optional components of the aqueous liquid phase.

An optional component in the formulation is a second dispersed phase comprising a fabric conditioning agent in an amount of from 0.5% to 30% by weight of the formulation; preferably this may be present in an amount of from 2% to 15%. This agent may be a fabric softening agent; examples of these materials have been previously quoted in the paragraph above describing the insoluble cationic materials which may be present in the first dispersed phase.

#### Methods of Preparation

While it has been found that several methods of preparation give the desired deposition properties certain of these methods are preferred. The preferred method has the melting together of the organic matrix material, cationic material and sensorially perceivable material as a first step. The melt may then be dispersed in the aqueous phase or a component thereof, for example in hot water with subsequent cooling or the melt may be solidified and dispersed into cold water. Optional further components of the aqueous phase, and the second dispersed phase, may then be added. Examples of apparatus usable to cause dispersion of the organic matrix material in the liquid phase are high speed stirrers, ultrasonic dispersers, vibrating reeds and continuous mixers. These devices provide different particle sizes which will be of specific utility for different formulations.

Examples of formulations of the invention will now be given.

#### Example I

98 g tallow alcohol ethoxylated with an average of 3 moles of ethylene oxide (TA3EO), as the organic matrix material, and 2 g Sudan Black B (Solvent Black 3—Colour Index 26150) were melted together. Cetyl trimethyl ammonium bromide (CTAB) was melted into this mixture at the following levels:

0, 0.5, 1.0, 2.0, 5.0, and 10.0 g for each 100 g of mixture of tallow alcohol 3EO and Sudan Black B.

These mixtures were emulsified with water at 80°C while still in the molten state, using a Minisonic 4 homogeniser (Ultrasonics Ltd. Shipley, Yorks) to form 1% concentrations.

Fabric pieces, of cotton terry towel and of bulked acrylic knitted fabric, were rinsed in dilutions of these emulsions (30 g of emulsion per litre of water) at a liquor to cloth ratio of 75:1, 25°C, in a Terg-O-Tometer (US Testing Co. Inc.) for 5 minutes at 50 cycles per minute agitation. The fabrics were removed, and excess liquor was removed by a spin dryer, before the pieces were completely dried in a heated drying cabinet.

Reflectances of the fabrics were measured spectrophotometrically before and after treatment. Reflectances were measured using a Zeiss Elrepho Reflectance Spectrophotometer at a light wavelength of 620 nm, and converted to

$$\frac{K}{S}$$

values (K=absortivity coefficient and S=scattering coefficient) by the appropriate Kubelka-Munk relationship. The

$$\frac{K}{S}$$

quantity is proportional to the weight of colouring matter present.

$$\frac{\Delta K}{S}$$

the difference between

$$\frac{K}{S}$$

5 for the dyed fabric and the original fabric was computed and represents the amount of dye taken down onto the fabric during the rinse. 5

Results were as follows:

% Amount of CTAB Incorporated	$\frac{\Delta K}{S}$	$\frac{\Delta K}{S}$
	Cotton Terry Towel	Acrylic Textile
0	0.038	0.216
0.5	0.015	0.584
1	0.053	0.416
2	0.514	0.254
5	0.849	0.113
10	0.911	0.062

15 In this system, the optimum amount of CTAB for the cotton fabric is above 15 1%, and for the acrylic it is between 0.5 and 2% by weight of the nonionic. These optimum regions overlap between 1% and 2% CTAB, where enhanced deposition is achieved on both fabrics.

#### Example II

20 Tallow alcohol 3EO and Sudan Black B were melted together in the same 20 quantities as in Example I, and were emulsified into water in the manner described therein, without CTAB. CTAB solutions were prepared and added separately to the dispersion at such levels that the proportions of CTAB to the tallow alcohol 3EO/Sudan Black B mixture were the same as in Example I.

25 The mixtures were used to treat fabrics as in Example I with the following 25 results:

% Amount of CTAB added to the Dispersion (Proportional to the Weight of Dispersed Material)	$\frac{\Delta K}{S}$	$\frac{\Delta K}{S}$
	Cotton Terry Towel	Acrylic Textile
0	0.010	0.120
0.5	—	0.457
1	0.015	—
2	—	0.173
5	0.456	0.119
10	0.777	—

40 The optimum level of CTAB for cotton was above 1% and for acrylic it was 40 between 0.5% and 2% by weight of the matrix material.

#### Example III

The mixtures of Example I were prepared, but they were allowed to cool and solidify prior to dispersion into cold water. The other experimental parameters were those of Example I.

The results were:

	% Amount of CTAB Incorporated	K Δ— S	K Δ— S	
		Cotton Terry Towel	Acrylic Textile	
	0	0.106	0.389	
5	0.5	0.722	0.964	5
	1	0.484	1.224	
	2	0.930	0.522	
	5	0.699	0.482	
	10	0.710	0.211	

10 The optimum amount of CTAB in this case, for cotton, was between 0.5% and 5%, and for acrylic it was also between 0.5% and 5% by weight based on the matrix material. It will be noted these results are better than those quoted in Example I where the dispersed phase was dispersed while molten. 10

15 The effect achieved in Examples I, II and III will be seen to decrease in the order III, I and II. This reduction follows from the amount of free cationic in the liquid phase. The method of preparation used in Example III produces the least amount of cationic in the liquid phase. 15

#### Example IV

20 98 g tallow alcohol 3EO and 2 g Sudan Black B were melted together with 0, 0.5, 1.0, 2.0, 5.0, 10.0 g of distearyl dimethyl ammonium chloride. Dispersions were prepared using the method of Example I. 20

	% Amount of Distearyl Dimethyl Ammonium Chloride Incorporated	K Δ— S	K Δ— S	
		Cotton Terry Towel	Acrylic Textile	
	0	0.194	0.157	
	0.5	0.012	0.647	
25	1	0.012	0.751	25
	2	0.010	0.418	
30	5	1.177	0.186	30
	10	1.214	0.115	

35 The optimum amount of cationic for cotton is above 2%, and for the acrylic it is between 0.5 and 5% by weight based on the nonionic. The best level for both fabrics is between 2% and 5% cationic. 35

#### Example V

Example I was repeated using dodecyl trimethyl ammonium bromide (DTAB) instead of CTAB. The results were as follows:

	% Amount of DTAB Incorporated	K Δ— S	K Δ— S	
		Cotton Terry Towel	Acrylic Textile	
	0	0.214	0.125	
	0.5	0.010	0.142	
40	1	0.007	0.404	40
	2	0.060	0.982	
45	5	0.229	0.803	45
	10	0.329	0.464	

The optimum amount of cationic for cotton was above 2% and for acrylic it was between 0.5 and 10%. Enhanced deposition was achieved on both fabrics between 2% and 10% cationic by weight based on the nonionic.

50

#### Example VI

50 9 g tallow alcohol 3EO and 1 g ditertiary butyl-hydroxy toluene (an antioxidant) were melted with 2 g of distearyl dimethyl ammonium chloride, mixed

thoroughly and allowed to solidify. The waxy solid was made into a paste and then a cream by grinding with an increasing amount of water in a pestle and mortar. The cream was finally dispersed in water, to a total volume of 500 ml by stirring for 1 minute with a high speed stirrer to form product A. Control product B was prepared by dissolving 4 g of the antioxidant in acetone (10 ml) and making up to 2 litres with water.

Two naturally soiled pillowcases were washed for 5 mins at 40°C in a paddle type washing machine. An unperfumed, but otherwise conventional, detergent product was employed at 0.2%. After rinsing, the pillowcases were cut in half and one half of each was further rinsed (5 mins at 20°C) in 2 litres of water containing 10 ml of the above dispersion. The other halves were similarly treated with product B.

The halves of pillowcases were then compared, for odour, by a panel of 20 assessors and no significant differences were found. However, after storage for 1 week, in separate containers, the half treated with Product A was preferred to the control half in 35 of the 40 comparisons. This result demonstrates the antioxidant deposited in a formulation according to the invention is more evenly deposited over the fabric than the antioxidant in Product B and therefore suppresses malodours more effectively.

#### Example VII

Emulsions C and D were prepared of tallow alcohol 3EO (TA3EO), a perfume mixture, distearyl dimethyl ammonium chloride (DDAC) in water to the following compositions:

	TA3EO	Perfume	DDAC	Water
C)	9 g	1 g	2 g	100 ml
D)	6 g	4 g	1 g	100 ml

The method of preparation was to blend the TA3EO, perfume and DDAC by melting them together, allowing the mixture to solidify, then incorporating cold water gradually to give a coarse dispersion. This was then treated ultrasonically to form a smooth emulsion.

Resin finished polyester/cotton fabric was rinsed in dilutions of these emulsions in a paddle action washing machine (Hotpoint Supermatic) using a ratio of 17 litres of liquor to 700 g of fabric and adding 10 ml of one of the emulsions. The fabric was agitated in the liquor at room temperature for 15 minutes, then removed and dried.

A panel of 20 assessors was asked to smell the cloths and all could detect the difference in perfume level between the cloths treated with the two emulsions. Those treated with D were stronger than those treated with C; as would be expected from the difference in perfume content of the two emulsions. Both treated fabrics were much more strongly perfumed than one which had been rinsed in a suspension of the perfume alone at the same total concentration with reference to perfume as from emulsion D.

#### Example VIII

A dispersion was prepared, by the method described in Example VII, comprising stearyl stearate (6 g), a perfume mixture (4 g), distearyl dimethyl ammonium chloride (1 g) and water 100 g.

25 ml of this dispersion was then added to 475 ml of a 4.5% dispersion of distearyl dimethyl ammonium chloride in water. To a further sample of the 4.5% dispersion was added the same perfume mixture, alone, to a level of 0.2%. These two dispersions were then used for final rinse treatment of wash loads.

Balanced laundry loads containing cotton terry towelling hand towels were washed in an AEG Lavamat Regina drum type washing machine with an unperfumed detergent product using the 60°C wash programme. Each load was treated, in the final rinse, with one of the above two dispersions. After four loads had been treated with each dispersion the hand towels were assessed by an expert panel for softness. No significant differences were found between the two dispersions. However, the panel were unanimous that those towels treated with the dispersion containing the matrix were much more highly perfumed than those treated with the dispersion containing the perfume mixture alone.



## Example IX

A dispersion was prepared, by the method described in Example VII, comprising N,N-ditallow ethanolamine (5 g), distearyl dimethyl ammonium chloride (0.5 g) the optical brightening agent, 1-p-carboxymethyl phenyl - 3 - p - chlorophenyl -  $\Delta^2$  - pyrazoline (0.05 g) and water (100 ml).

A dilution of this dispersion containing 50 mls in 45 litres was used to rinse 3 kg of non-fluorescent cotton terry towels for 10 minutes at room temperature. A similar load of towels was rinsed in a solution containing 50 mls of a 0.5% dispersion of distearyl dimethyl ammonium chloride. Attempts to obtain a 5% dispersion of N,N-ditallow ethanolamine as an additional control were unsuccessful.

This formulation is an embodiment wherein the organic matrix material provides a desirable benefit, i.e. fabric softening. The fluorescer is nylon substantive but has been made cotton substantive by use of the invention.

The words "Hotpoint", "Supermatic" and "Regina" used in this specification are Registered Trade Marks.

## WHAT WE CLAIM IS:—

1. A liquid formulation for fabric treatment to provide a sensorially perceivable effect appreciated by the olfactory, visual or auditory senses, comprising
  - i) from 0.5% by weight to 50% by weight of a first dispersed phase consisting of particles, being a mixture of
    - a) from 25% to 99% by weight of the first dispersed phase of a substantially water insoluble non-cationic organic matrix material, having a solubility in the aqueous phase of not more than 200 parts per million;
    - b) from 0.5% to 25% by weight of the first dispersed phase of a cationic material having a solubility in water not greater than 5 g per litre at 25°C; and
    - c) from 0.5% to 50% by weight of the first dispersed phase of a sensorially perceivable material capable of providing an effect appreciated by the olfactory, visual or auditory senses dispersed in
  - ii) from 50% to 99.5% by weight of an aqueous phase.
2. A liquid formulation according to claim 1 containing from 0.5% to 30% by weight of the formulation of a second dispersed phase comprising a fabric conditioning material.
3. A liquid formulation according to claim 2 wherein the fabric conditioning material is a fabric softener agent.
4. A liquid formulation according to any preceding claim wherein the cationic material in the first dispersed phase is present in an amount of from 2% to 10% by weight of the first dispersed phase.
5. A liquid formulation according to any preceding claim wherein the first dispersed phase is present in an amount up to 10% by weight of the formulation.
6. A liquid formulation according to claim 5 wherein the first dispersed phase is present in an amount up to 2% by weight of the formulation.
7. A liquid formulation according to claim 2 wherein the fabric conditioning material is present in an amount of from 2% to 15%.
8. A liquid formulation according to any preceding claim wherein the organic matrix material provides a second sensorially perceivable effect.
9. A liquid formulation according to any of claims 1 to 8 wherein the matrix material is a nonionic material.
10. A liquid formulation according to any preceding claim wherein the solubility of the organic matrix material is not more than 50 parts per million.
11. A liquid formulation according to any preceding claim wherein the sensorially perceivable material is a perfume.
12. A liquid formulation according to any preceding claim wherein the cationic material in the first dispersed phase is a fabric softener material.
13. A liquid formulation according to any of claims 1 to 11 wherein the cationic material in the first dispersed phase is a surfactant.
14. A liquid formulation according to any preceding claim wherein the organic matrix material is selected from aliphatic alcohols containing from 8 to 22 carbon atoms, aliphatic alcohols ethoxylated with up to about 5 moles of ethylene oxide, and esters of the formula  $RCOOR^1$  with R and R<sup>1</sup> are each alkyl or alkenyl groups containing from 8 to 22 carbon atoms.

15. A method of preparing a formulation according to any preceding claim wherein the components of the first dispersed phase are melted together and then dispersed in the aqueous phase or a component thereof while in the molten state.

5 16. A method of preparing a formulation according to any of claims 1 to 14 wherein the components of the first dispersed phase are

i) melted together;

ii) allowed to solidify; and

iii) dispersed in the aqueous phase or a component thereof.

10 17. A method according to claim 15 or 16 substantially as herein described.

18. A liquid formulation prepared by the method of claim 15, 16 or 17.

19. A liquid formulation for fabric treatment according to claim 1 substantially as herein described.

15 20. A liquid formulation for fabric treatment to provide a sensorially perceivable effect appreciated by the olfactory, visual or auditory senses according to claim 1 and substantially as described in any of Examples I to IX.

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