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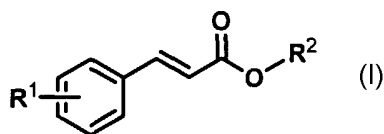
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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: WASHING COMPOSITIONS



(I)

(57) Abstract: A washing composition comprising (a) a detergent material; (b) a fra-
grant aldehyde; (c) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and
(d) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula
(I) where R^1 is selected from the group consisting of hydrogen, C_1 - C_{16} alkyl, C_1 - C_{16}
alkoxy, aryl and substituted aryl, and R^2 is selected from the group consisting of aryl,
substituted aryl and C_6 - C_{16} alkyl; the materials (b)-(d) each having an odour value of

10,000 maximum. The problem of rancidity, commonly encountered when low-grade detergent materials are used, especially in
laundry soaps, is considerably reduced.

WASHING COMPOSITIONS

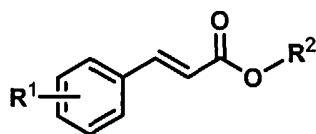
This invention relates to compositions for washing and to methods of preventing undesirable odours.

5

In many parts of the world, washing compositions, in particular bars of washing soap used for washing clothing and textiles, are made from relatively cheap materials, typically materials derived from animal and vegetable fats. A problem universally encountered with such products is malodour. This is provoked by various factors, such as heat, humidity and presence of other
10 additives which develops and becomes worse over time. This can be overcome by the addition of perfume to counteract the malodour, but this solution is not only expensive but also not always effective.

It has now been found that this problem may be substantially or even completely overcome by
15 the use of a particular formulation, in that the malodour can be counteracted and even a pleasant odour can be imparted, without the need for a perfume addition. The invention therefore provides a washing composition comprising

- (a) a detergent material;
- (b) a fragrant aldehyde;
- 20 (c) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and
- (d) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula

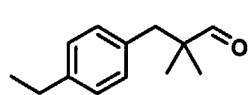


where R^1 is selected from the group consisting of hydrogen, C_1 - C_{16} alkyl, C_1 - C_{16} alkoxy, aryl and substituted aryl, and R^2 is selected from the group consisting of aryl, substituted aryl and
25 C_6 - C_{16} alkyl; the materials (b)-(d) each having an odour value of 10,000 maximum.

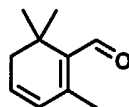
The use of the singular in the definition shown above also includes the plural.

The parameter of Odour Value (hereinafter "OV") is well known to the art. It is determined by
30 the method of Neuner and Etzweiler, and is described in the standard reference work "Perfumes: Art, Science and Technology" (Elsevier, 1991) at p.153. Preferably the materials

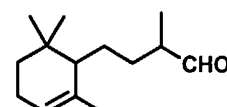
(b)-(d) have an OV of less than 5,000, more preferably less than 2,000 and most preferably less than 1000. A list of aldehydes, suitable for use in this invention, is shown below; this list is exemplary only and other aldehydes not shown here are also suitable for use in the invention.



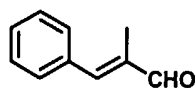
3-(4-Ethyl-phenyl)-2,2-dimethyl-propionaldehyde



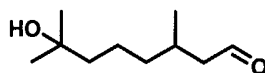
2,6,6-Trimethyl-cyclohexa-1,3-dienecarbaldehyde



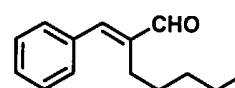
2-Methyl-4-(2,6,6-trimethyl-cyclohex-2-enyl)butyraldehyde



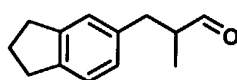
2-Methyl-3-phenyl-propenal



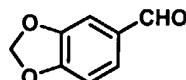
7-Hydroxy-3,7-dimethyl-octanal



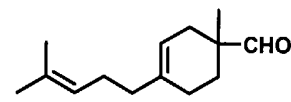
2-Benzylidene-heptanal



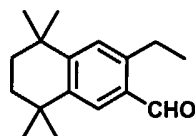
3-Indan-5-yl-2-methyl-propionaldehyde



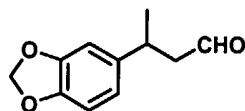
Benzo[1,3]dioxole-5-carbaldehyde



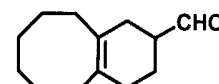
1-Methyl-4-(4-methyl-pent-3-enyl)-cyclohex-3-enecarbaldehyde



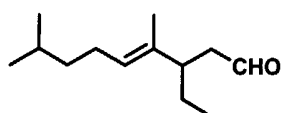
3-Ethyl-5,5,8,8-tetramethyl-5,6,7,8-tetrahydro-naphthalene-2-carbaldehyde



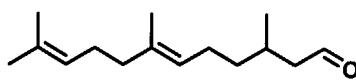
3-Benzo[1,3]dioxol-5-yl-butylaldehyde



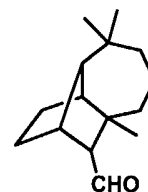
1,2,3,4,5,6,7,8,9,10-Decahydro-benzocyclooctene-2-carbaldehyde



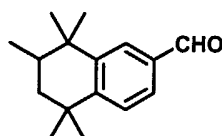
3-Ethyl-4,8-dimethyl-non-4-enal



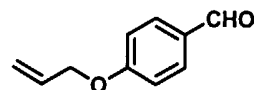
3,7,11-Trimethyl-dodeca-6,10-dienal



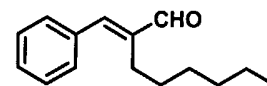
4,8,8-Trimethyl-decahydro-1,4-methano-azulene-9-carbaldehyde



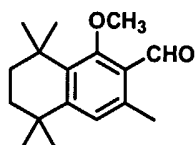
5,5,7,8,8-Pentamethyl-5,6,7,8-tetrahydro-naphthalene-2-carbaldehyde



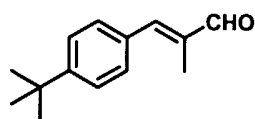
4-Allyloxy-benzaldehyde



2-Benzylidene-octanal



1-Methoxy-3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-naphthalene-2-carbaldehyde



3-(4-tert-Butyl-phenyl)-2-methyl-propenal

Polyethylene imines are materials composed of ethylene imine units $-\text{CH}_2\text{CH}_2\text{NH}-$. The chains may be branched, in which case the hydrogen on the nitrogen is replaced by another chain of ethylene imine units. Polyethylene imines are water-soluble and are used in a variety of commercial applications. Examples of commercially-available polyethylene imines useful in this invention include the range sold under the trade name LUPASOL (ex BASF). These are available in various grades, with molecular weights from 800 to 2 mio. Da. The same OV's as for aldehydes apply to the polyethylene imines.

The esters of the formula hereinabove depicted may be any such esters. Preferably R^1 is hydrogen, C_{1-8} alkyl, C_{1-8} alkoxy or aryl, and independently of this, R^2 is preferably C_{6-12} alkyl or aryl.

By "detergent material" is meant any substance or combination of substances that are useful for cleansing, when used in conjunction with water. This definition comprehends not only the surfactant blends used in laundry and dishwashing detergents, but also the more traditional soap raw materials, such as saponified natural oils. This invention may be used in conjunction with any of these, but it is especially useful with low-grade soap materials of the type often used in laundry bar soaps in parts of Asia and Latin America. Such materials are particularly prone to malodour over time and the use of this invention considerably reduces this, and may even eliminate it completely.

The washing compositions of this invention may also use any of the known materials used by the art in detergent compositions, in art-recognised quantities. One preferred such material is solvent; it is preferred that the materials (b)-(d) are first dissolved in solvent prior to their addition to the detergent material, as this makes their incorporation easier. Typical solvents include dipropylene glycol, diethyl phthalate, isopropyl myristate and benzyl benzoate.

Another known material that may be used is fragrance. Although this invention can eliminate completely malodour and even itself impart a pleasing odour, it may be desirable to impart a particular fragrance to the composition. This may be done by using one or more of the many fragrances known to the art, in art-recognised quantities. One of the advantages of this invention is that, with the reduction or elimination of malodour, less perfume (an expensive component) is necessary to achieve a desired effect. The fragrances are generally solutions in

organic solvent, and they may be added to the mixture of materials (b)-(d) and solvent hereinabove mentioned.

In a typical washing composition according to the invention, a mixture of solvent, fragrance
5 and materials (b)-(d) will comprise from 0.01-10% by weight of each of the materials (b), (c) and (d), and from 10-78% of solvent and/or fragrance.

Other art-recognised ingredients, such as fungicides, bactericides and skin emollients may also be used in art-recognised quantities.

10

The washing compositions of the invention are prepared by mixing the ingredients in the known manner. As hereinabove described, it is preferred to mix materials (b)-(d) first, preferably with solvent, and then mix this mixture into material (a), to give a composition according to the invention. The proportions should be such that

15

(a) when fragrance is present, materials (b)+(c)+(d) are present to the extent of from 0.01-5.0% by weight of materials (a)+(b)+(c)+(d); and

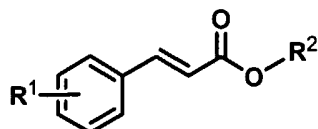
(b) when no fragrance is present, materials (b)+(c)+(d) are present to the extent of from 0.01-
20 2.0% by weight of materials (a)+(b)+(c)+(d).

By substantially or even completely overcoming the problem of rancidity frequently encountered with low-grade detergent materials, the invention allows their use in a much wider range of applications. The invention therefore also provides a composition for the reduction of
25 rancidity in detergent materials prone thereto, the composition comprising:

(a) a fragrant aldehyde;

(b) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and

(c) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula



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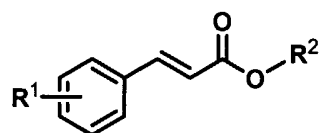
where R^1 is selected from the group consisting of hydrogen, C_1 - C_{16} alkyl, C_1 - C_{16} alkoxy, aryl and substituted aryl, and R^2 is selected from the group consisting of aryl, substituted aryl and C_6 - C_{16} alkyl; the materials (b)-(d) each having an odour value of 10,000 maximum.

5 The invention further provides a method of reducing rancidity in a detergent material prone thereto, comprising the addition thereto of a composition consisting essentially of

(a) a fragrant aldehyde;

(b) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and

10 (c) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula



where R^1 is selected from the group consisting of hydrogen, C_1 - C_{16} alkyl, C_1 - C_{16} alkoxy, aryl and substituted aryl, and R^2 is selected from the group consisting of aryl, substituted aryl and C_6 - C_{16} alkyl; the materials (b)-(d) each having an odour value of 10,000 maximum.

15

The invention is now further described with reference to the following non-limiting examples. In these examples, combinations of materials (b), (c), and (d) were tested in different soap bases in the absence (examples 1-3) and in the presence (examples 4-6) of perfume.

20 **EXAMPLE 1**

A mixture of 5% (wt) dihydrofarnesal (3,7,11-trimethyl-dodeca-6,10-dienal) (component (b)), 20% LUPASOL G 100 (50% active level, viscosity 1200 mPa-s, molecular weight (weight-average) 5000 (component (c)), 15% octyl methoxy cinnamate (component (d)), and 60% isopropyl myristate (60%) was prepared and added at a dosage of 0.2% by weight to soap
25 bases as hereinunder described. The base was milled thoroughly and soap cakes made. The cakes were allowed to macerate for one day and evaluated olfactively. Soap cakes were made without the mixture and used as comparisons.

Evaluation was carried out on the strength of the fragrance note and how well the fragrance covered the base note. Various soap bases with strong to mild inherent base odours were
30 evaluated by a panel and were given a rating as below:

<u>Perfume Strength</u>		<u>Base Odour Coverage</u>
Very Strong	5	Excellent Coverage
Strong	4	Very Good Coverage
Good	3	Good Coverage
5 Moderate	2	Weak Coverage
Weak	1	Base Odour Noticeable

	<u>Base Odour Rating</u>	
	<u>without</u> <u>mixture</u>	<u>with</u> <u>mixture</u>
Soap Base 1	4.0	1.9
Soap Base 2	4.1	2.0
Soap Base 3	4.1	2.1
Soap Base 4	4.0	1.9

Soap Base 1 was 100% soap base (usually contains about 15-20% water) of plant origin
 10 (usually referred to as 80/20, meaning made from 80% palm oil and 20% coconut oil).

Soap Base 2 was a mixture of soap base (90% Soap Base 1) + 10% talc (this type of combination is usually used in making premium toilet soaps).

Soap Base 3 was a mixture of soap base (80% Soap Base 1) + 20% talc (this type of combination is usually used in making mid-price toilet soaps).

15 Soap Base 4 was a mixture of soap base (60% Soap Base 1) + 40% talc (this type of combination is usually used in making low-cost toilet soaps).

EXAMPLE 2

A mixture of 10% dihydrofarnesal, 10% LUPASOL SK (25% active content, viscosity 500 -
 20 1000 mPa-s and molecular weight 2,000,000), 5% geranyl crotonate and 75% dipropylene glycol was prepared and added at a dosage of 0.3% into soap bases of the types shown below. The base was milled thoroughly and soap cakes made. Soap cakes without the mixture were also made. The cakes were allowed to macerate for one day and evaluated olfactively as described in Example 1.

	Base Odour Rating	
	without mixture	with mixture
Soap Base 5	4.6	1.8
Soap Base 6	4.5	2.1
Soap Base 7	4.6	1.9
Soap Base 8	4.6	1.9

Soap Base 5 was 100% soap base (usually contains about 15-20% water) of plant origin, prepared from a mixture of crude palm oil and palm fatty acid distillate.

Soap Base 6 was a mixture of soap base (90% Soap Base 5) + 10% talc (this type of combination is usually used in making premium toilet soaps).

Soap Base 7 was a mixture of soap base (80% Soap Base 5) + 20% talc (this type of combination is usually used in making mid-price toilet soaps).

Soap Base 8 was a mixture of soap base (60% Soap Base 5) + 40% talc (this type of combination is usually used in making low-cost toilet soaps).

10

EXAMPLE 3

A mixture of 10% dihydrofarnesal, 20% LUPASOL G 35 (50% active level, viscosity =450 mPa-s, average MW 2000), 20% dihexyl fumarate and 50% diethyl phthalate was prepared and added at a dosage of 0.1% into soap bases as described below and soap cakes made. Soap cakes without the mixture were also made. The cakes were allowed to macerate for one day and evaluated olfactively.

15

	Base Odour Rating	
	without mixture	with mixture
Soap Base 9	4.0	1.9
Soap Base 10	4.1	2.0
Soap base 11	4.1	2.1
Soap base 12	4.0	1.9

Soap Base 9 was 100% soap base (usually contains about 15-20% water) of tallow origin.

Soap Base 10 was a mixture of soap base (90% Soap Base 9) + 10% talc (this type of combination is usually used in making premium toilet soaps).

Soap Base 11 was a mixture of soap base (80% Soap Base 9) + 20% talc (this type of combination is usually used in making mid-price toilet soaps).

Soap Base 12 was a mixture of soap base (60% Soap Base 9) + 40% talc (this type of combination is usually used in making low-cost toilet soaps).

EXAMPLE 4

- 10 A mixture of 5% dihydrofarnesal, 10% LUPASOL HF (50% active content, viscosity 14,000 mPa-s and molecular weight 50,000), 5% geranyl crotonate and 80% dipropylene glycol was prepared and mixed with a perfume (perfume 80% + mixture 20%). This mixture was dosed at 1.5% into soap bases as described hereinunder. The base was milled thoroughly and soap cakes made. The cakes were allowed to macerate for one day and evaluated olfactively.
- 15 Control soap cakes (without the mixture and containing only the perfume at 1.5% dosage) were also made and tested.

	Perfume Strength Rating		Base Odour Coverage	
	without mixture	with mixture	without mixture	with mixture
Soap Base A	4.2	4.8	2.1	4.7
Soap Base B	4.1	4.9	1.9	4.5
Soap Base C	4.1	4.9	1.9	4.8
Soap Base D	4.0	4.8	2.0	4.8

Perfume dosage in the soap base was 1.5% and the perfume contained 30% solvent. In the case of soaps to which the mixture was added, the proportion of solvent was reduced by the quantity of mixture present.

Soap Base A was made from 100% soap base (usually contains about 15-20% water) of plant origin (usually referred to as 80/20, meaning made from 80% palm oil and 20% coconut oil)

Soap Base B was made from a mixture of soap base (90% Soap Base 1) + 10% talc (this type of combination is usually used in making premium toilet soaps)

Soap Base C was made from a mixture of soap base (80% Soap Base 1) + 20% talc (this type of combination is usually used in making mid-price toilet soaps).

- 5 Soap Base D was made from a mixture of soap base (60% Soap Base 1) + 40% talc (this type of combination is usually used in making low-cost toilet soaps).

EXAMPLE 5

A mixture of 15% dihydrofarnesal, 5% LUPASOL PS (33% active content, viscosity 1400
10 mPa-s and MW 750,000), 5% LUPASOL G 100 (50% active level, viscosity 1200 mPa-s, and average MW 5000), 5% octyl methoxy cinnamate, and 70% isopropyl myristate was prepared and mixed with a perfume (perfume 90% + mixture 10%). This mixture was dosed at 1.2% into soap bases as described hereinunder. The base was milled thoroughly and soap cakes made. The cakes were allowed to macerate for one day and evaluated olfactively. Control soap cakes
15 (without the mixture and containing only perfume at 1.2% dosage) were also prepared and tested.

	Perfume Strength Rating		Base Odour Coverage	
	without mixture	with mixture	Rating without mixture	with mixture
Soap Base E	4.2	4.7	1.6	4.5
Soap Base F	4.0	4.9	1.9	4.6
Soap Base G	3.9	4.8	1.7	4.8
Soap Base H	3.6	4.9	2.0	4.8

Soap Base E was made from 100% soap base (usually contains about 15-20% water) of plant
20 origin prepared from a mixture of crude palm oil and palm fatty acid distillate.

Soap Base F was made from a mixture of soap base (90% Soap Base 5) + 10% talc (this type of combination is usually used in making premium toilet soaps).

Soap Base G was made from a mixture of soap base (80% Soap Base 5) + 20% talc (this type of combination is usually used in making mid-price toilet soaps).

Soap Base H was made from a mixture of soap base (60% Soap Base 5) + 40% talc (this type of combination is usually used in making low-cost toilet soaps).

5

EXAMPLE 6

A mixture of 5% dihydrofarnesal, 10% LUPASOL G 100 (50% active level, viscosity 1200 mPa-s, average MW 5000), 25% octyl methoxy cinnamate and 60% benzoyl benzoate was prepared and mixed with a perfume (perfume 85% + mixture 15%). This mixture was dosed at 1.6% into soap bases as described hereinunder. The base was milled thoroughly and soap cakes made. The cakes were allowed to macerate for one day and evaluated olfactively. Control soap cakes (without the mixture and containing only perfume at 1.6% dosage) were also made and tested.

10

	Perfume Strength Rating		Base Odour Coverage	
	without mixture	with mixture	Rating without mixture	with mixture
Soap Base J	4.5	4.9	2.1	4.5
Soap Base K	4.6	4.9	1.9	4.6
Soap Base L	4.4	4.8	1.8	4.8
Soap Base M	4.6	4.9	2.0	4.8

15

Soap Base J was 100% soap base (usually contains about 15-20% water) of tallow origin.

Soap Base K was made from a mixture of soap base (90% Soap Base 9) + 10% talc (this type of combination is usually used in making premium toilet soaps).

Soap Base L was made from a mixture of soap base (80% Soap Base 9) + 20% talc (this type of combination is usually used in making mid-price toilet soaps).

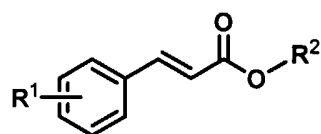
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Soap Base M was made from a mixture of soap base (60% Soap Base 9) + 40% talc (this type of combination is usually used in making low-cost toilet soaps).

Claims:

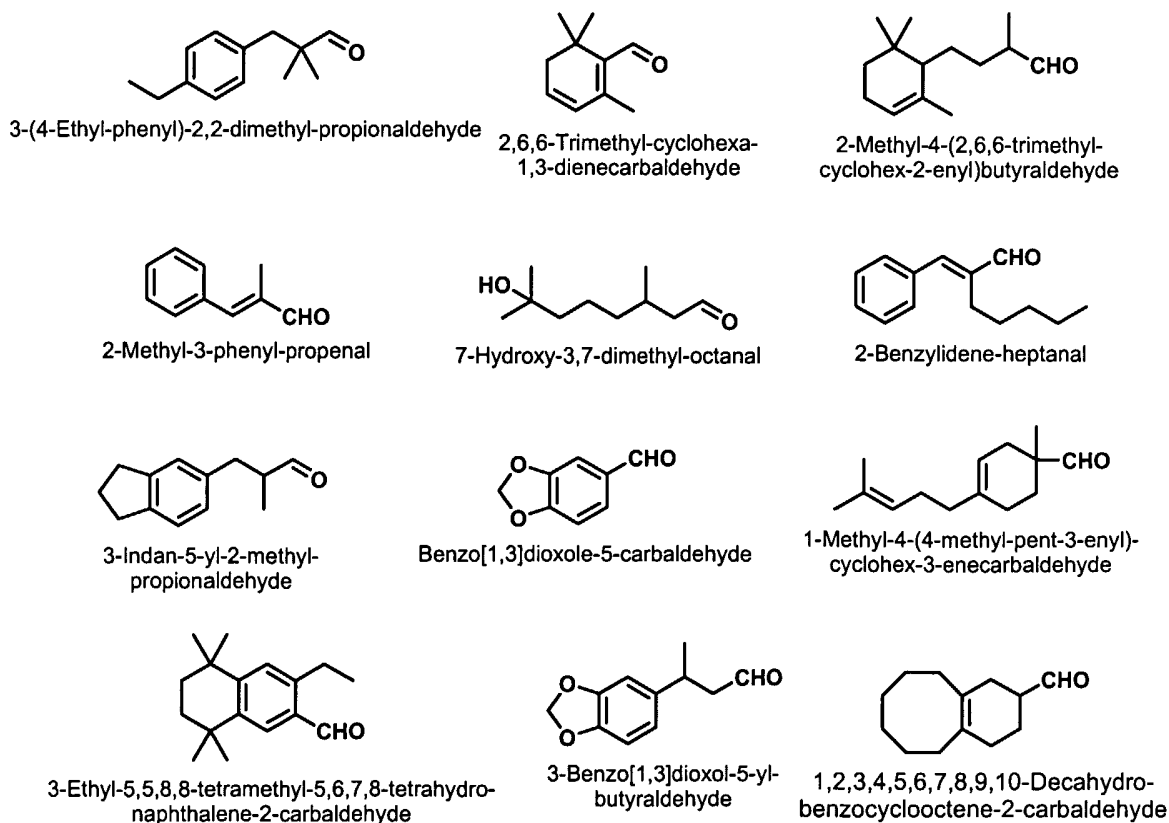
1. A washing composition comprising

- (a) a detergent material;
- 5 (b) a fragrant aldehyde;
- (c) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and
- (d) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula

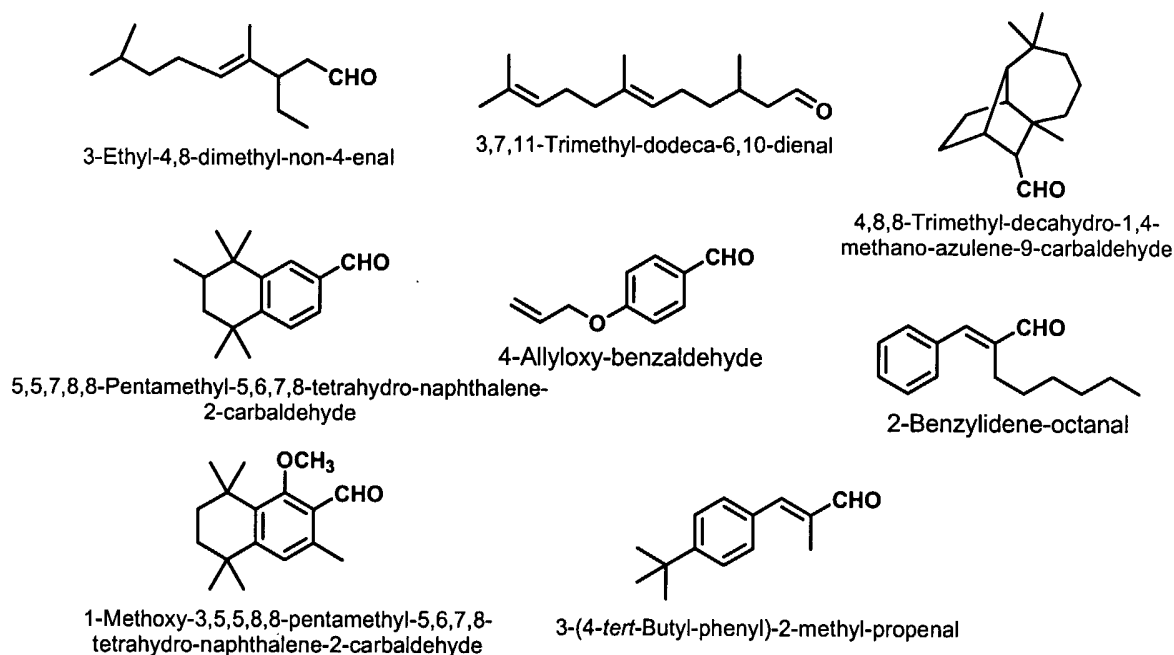


- 10 where R^1 is selected from the group consisting of hydrogen, C_1 - C_{16} alkyl, C_1 - C_{16} alkoxy, aryl and substituted aryl, and R^2 is selected from the group consisting of aryl, substituted aryl and C_6 - C_{16} alkyl; the materials (b)-(d) each having an odour value of 10,000 maximum.

- 15 2. A washing composition according to claim 1, in which the aromatic, monoethylenically-unsaturated carboxylic ester is selected from the group consisting of:



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3. A washing composition according to claim 1, in which R¹ is hydrogen, C₁₋₈ alkyl, C₁₋₈ alkoxy or aryl.

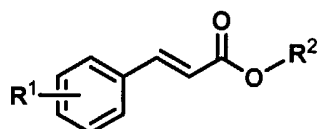
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4. A washing composition according to claim 1, in which R² is C₆₋₁₂ alkyl or aryl.

5. A process for the preparation of a washing composition comprising the blending of components (a)-(d):

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- (a) a detergent material;
- (b) a fragrant aldehyde;
- (c) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and
- (d) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula

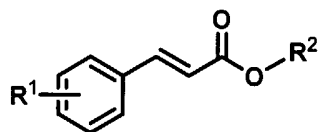


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where R¹ is selected from the group consisting of hydrogen, C₁-C₁₆ alkyl, C₁-C₁₆ alkoxy, aryl and substituted aryl, and R² is selected from the group consisting of aryl, substituted aryl and C₆-C₁₆ alkyl; the materials (b)-(d) each having an odour value of 10,000 maximum;

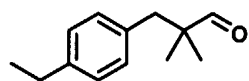
comprising the initial dissolving of components (b)-(d) in solvent, prior to their addition to component (a).

6. A process according to claim 5, in which the solvent is selected from dipropylene glycol, diethyl phthalate, isopropyl myristate and benzyl benzoate.
7. A composition for the reduction of rancidity in detergent materials prone thereto, the composition comprising:
 - (a) a fragrant aldehyde;
 - (b) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and
 - (c) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula

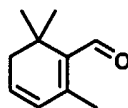


- where R^1 is selected from the group consisting of hydrogen, C_1 - C_{16} alkyl, C_1 - C_{16} alkoxy, aryl and substituted aryl, and R^2 is selected from the group consisting of aryl, substituted aryl and C_6 - C_{16} alkyl; the materials (b)-(d) each having an odour value of 10,000 maximum.
8. A composition according to claim 7, in which the aromatic, monoethylenically unsaturated carboxylic acid ester is selected from the group consisting of:

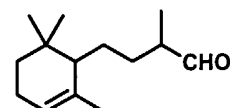
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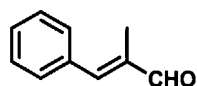
3-(4-Ethyl-phenyl)-2,2-dimethyl-propionaldehyde



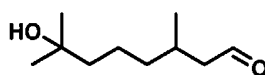
2,6,6-Trimethyl-cyclohexa-1,3-dienecarbaldehyde



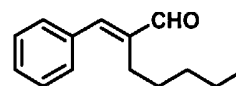
2-Methyl-4-(2,6,6-trimethyl-cyclohex-2-enyl)butyraldehyde



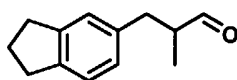
2-Methyl-3-phenyl-propenal



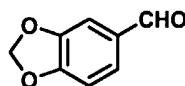
7-Hydroxy-3,7-dimethyl-octanal



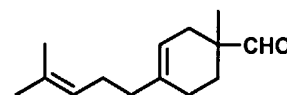
2-Benzylidene-heptanal



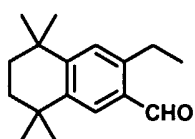
3-Indan-5-yl-2-methyl-propionaldehyde



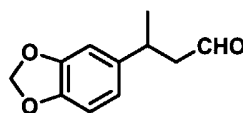
Benzo[1,3]dioxole-5-carbaldehyde



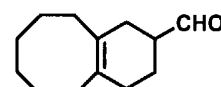
1-Methyl-4-(4-methyl-pent-3-enyl)-cyclohex-3-enecarbaldehyde



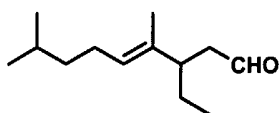
3-Ethyl-5,5,8,8-tetramethyl-5,6,7,8-tetrahydro-naphthalene-2-carbaldehyde



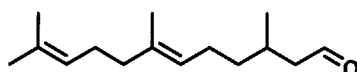
3-Benzo[1,3]dioxol-5-yl-butylaldehyde



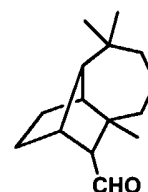
1,2,3,4,5,6,7,8,9,10-Decahydro-benzocyclooctene-2-carbaldehyde



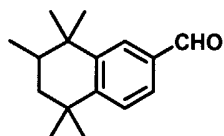
3-Ethyl-4,8-dimethyl-non-4-enal



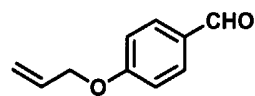
3,7,11-Trimethyl-dodeca-6,10-dienal



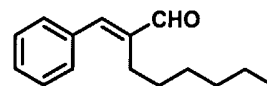
4,8,8-Trimethyl-decahydro-1,4-methano-azulene-9-carbaldehyde



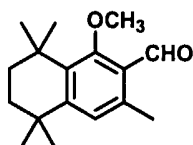
5,5,7,8,8-Pentamethyl-5,6,7,8-tetrahydro-naphthalene-2-carbaldehyde



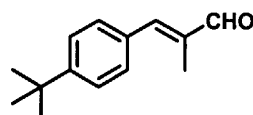
4-Allyloxy-benzaldehyde



2-Benzylidene-octanal



1-Methoxy-3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydro-naphthalene-2-carbaldehyde

3-(4-*tert*-Butyl-phenyl)-2-methyl-propenal

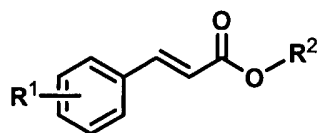
9. A composition according to claim 7, in which R¹ is hydrogen, C₁₋₈ alkyl, C₁₋₈ alkoxy or aryl.

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10. A composition according to claim 7, in which R^2 is C_{6-12} alkyl or aryl.
11. A method of reducing rancidity in a detergent material prone thereto, comprising the addition thereto of a composition consisting essentially of

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- (a) a fragrant aldehyde;
- (b) a polyethylene imine of the general formula $-(CH_2CH_2NH)_n-$; and
- (c) an aromatic, monoethylenically-unsaturated carboxylic acid ester of the formula



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where R^1 is selected from the group consisting of hydrogen, C_1 - C_{16} alkyl, C_1 - C_{16} alkoxy, aryl and substituted aryl, and R^2 is selected from the group consisting of aryl, substituted aryl and C_6 - C_{16} alkyl; the materials (b)-(d) each having an odour value of 10,000 maximum.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/CH2005/000241

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C11D3/50 C11D3/37

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C11D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 02/092746 A (THE PROCTER & GAMBLE COMPANY) 21 November 2002 (2002-11-21) page 15, line 1 - page 16, line 35; claims 1-11	1-4,7-11
Y	WO 99/16811 A (THE PROCTER & GAMBLE COMPANY; CAUWBERGHS, SERGE, GABRIEL; DUPONT, JEFF) 8 April 1999 (1999-04-08) page 47, line 13 - page 48, line 25; examples 1-3	1-4,7-11
Y	US 5 500 138 A (BACON ET AL) 19 March 1996 (1996-03-19) claims 1,31	1-4,7-11
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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Date of the actual completion of the international search

22 June 2005

Date of mailing of the international search report

04/07/2005

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Authorized officer

Richards, M

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CH2005/000241

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99/21954 A (THE PROCTER & GAMBLE COMPANY; SAWICKI, EDWARD, MACK) 6 May 1999 (1999-05-06) page 17, line 7 page 18, paragraph 2 - paragraph 3; claims 1-10 -----	1-4, 7-11
A	WO 03/022978 A (THE PROCTER & GAMBLE COMPANY) 20 March 2003 (2003-03-20) claims 1-12 -----	1-11

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