

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
19 February 2004 (19.02.2004)

PCT

(10) International Publication Number
WO 2004/015185 A1

(51) International Patent Classification⁷: **D06F 3/04**

Mumbai (IN). **SHAH, Bijal**; Hindustan Lever Ltd, Laundry Department, 64 Main Road, Whitefield P.O., 560 066 Bangalore, Karnataka (IN).

(21) International Application Number:
PCT/EP2003/008387

(22) International Filing Date: 21 July 2003 (21.07.2003)

(74) Agents: **ELLIOTT, Peter, William** et al.; Unilever PLC, Patent Department, Colworth House, Sharnbrook, Bedford, Bedfordshire MK44 1LQ (GB).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0218322.6 7 August 2002 (07.08.2002) GB

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for AE, AG, AU, BB, BZ, CA, CY, GB, GD, GH, GM, IE, IL, KE, LC, LK, LS, MN, MW, NZ, OM, PG, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW only*): **UNILEVER PLC** [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB).

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except AE, AG, AU, BB, BZ, CA, CY, GB, GD, GH, GM, IE, IL, IN, KE, LC, LK, LS, MN, MW, NZ, OM, PG, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW*): **UNILEVER NV** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

(71) Applicant (*for IN only*): **HINDUSTAN LEVER LIMITED** [IN/IN]; Hindustan Lever House, 165/166 Backbay Reclamation, Maharashtra, 400 020 Mumbai (IN).

Published:
— with international search report

(72) Inventors: **RAGHAVACHARI, Rajan**; Hindustan Lever Ltd, Reseach Centre, Chakala, Andheri (East), 400 099

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FABRIC TREATMENT ARTICLE AND CORRESPONDING METHOD OF USING IT

(57) Abstract: A method of treating a textile fabric with the human hand by contacting the textile with a fabric treatment article designed to be held by the human hand in the presence of water, the article comprising a flexible porous housing, the housing containing at least a solid detergent composition within it and the porous flexible housing is coated on the inside with a bleach ingredient, an enzyme, a perfume, a fluorescer or mixtures thereof. The detergent composition is preferably a bar.



WO 2004/015185 A1

- 1 -

FABRIC TREATMENT ARTICLE AND CORRESPONDING METHOD OF USING IT

TECHNICAL FIELD

The present invention relates to a fabric treatment article
5 for treating textile fabrics with the human hand.

INTRODUCTION

For the purposes of washing textile fabrics the hand wash
method remains by far the most widely used washing technique
10 around the world. Within the broad definition of 'handwash'
exist a multitude of different washing techniques, however
almost all of these involve an element of rubbing or
contacting a detergent composition with the textile fabrics
which require washing. Often these detergent compositions
15 are applied directly to the fabrics by hand. In some wash
habits, the handwash process is enhanced by the use of
additional wash tools such as brushes or solid blocks for
beating the fabrics.

20 Articles for assisting the cleansing of surfaces in general
are well-known in the art:

US 4,515,703 (Unilever) discloses an article for wiping
surfaces such as household industrial objects or the human
25 skin.

- 2 -

US 4,603,069 (Unilever) discloses a sheet-like article suitable for wiping hard surfaces comprising two sheets of nonwoven fabric bonded together by a plurality of small spaced bonding points.

5

US 6,063,390 (Unilever) discloses a wiping article suitable for cleansing body surfaces which includes an effervescence cleanser composition held within a pouch formed from a first and second substrate sheet, at least one of which is water-permeable.

10

WO 01 27239 (Procter & Gamble) discloses a semi-enclosed applicator for wiping kitchen surfaces having two sides and an internal cavity with a fluid-impermeable layer adjacent to one of the sides and comprising a liquid cleaning composition which comprises less than 0.5 wt% surfactant.

15

WO 01 26530 (Procter & Gamble) discloses a semi-enclosed applicator for wiping and cleaning kitchen surfaces having two sides containing a flexible fluid reservoir.

20

WO 01 29169 (Unilever) discloses a conventional detergent bar encased in a porous flexible housing such as a pouf.

25 Accordingly, the present inventors have devised a method of washing textile fabrics by hand which utilises a flexible porous housing which contains a solid detergent within it. Such a method results in an increase in detergency when the interior of the housing is coated in high-performance ingredients such as enzymes which are difficult to incorporate into certain solid detergent compositions.

30

- 3 -

DEFINITION OF THE INVENTION

In a first aspect, the invention provides a method of treating a textile fabric with the human hand by contacting
5 the textile with a fabric treatment article designed to be held by the human hand in the presence of water, the article comprising a flexible porous housing, the housing containing at least a solid detergent composition within it and wherein the interior of the housing is coated with a bleach
10 ingredient, an enzyme, a perfume, a fluorescer or mixtures thereof, preferably an enzyme.

In a second aspect, the invention provides a fabric treatment article comprising a flexible porous housing,
15 wherein the inside of the housing is coated in a bleach ingredient, an enzyme, a perfume, a fluorescer or mixtures thereof.

The Flexible Porous Housing

20 The fabric treatment article of the present invention comprises a flexible water-permeable housing. Such a housing allows the solid detergent composition to be applied more effectively to the fabrics which are intended to be
25 washed. Without wishing to be bound by theory it is understood that the housing reduces the amount of detergent composition which is applied to the fabric but due to its porosity helps to generate more foam. Hence these two aspects provide for at least two technical advantages over
30 using the detergent composition directly. Firstly less composition is used, thereby extending the lifetime of the

- 4 -

composition and increasing its cost performance. Secondly
the foam which is enhanced by the housing is more easily
removed since there is less detergent composition on the
surface of the fabric which may otherwise tend to produce
5 further foam during a rinse cycle.

Although the housing is flexible is it is preferred that it
is formed from a resilient material which tends to return to
its initial state when external forces are released. Hence
10 it is preferred that the article is flexible but resilient.
The housing is preferably at least partially made from a
non-woven material, preferably rayon.

It is also preferred that the housing has some degree of
15 abrasiveness sufficient to aid the rubbing of textile
fabrics but not so abrasive that it becomes painful to use
by the hand during a wash process.

In a first embodiment the housing may completely surround
20 the solid detergent composition to prevent it leaving the
housing during use. In an alternative embodiment the
housing does not completely surround the solid detergent and
has an opening. Such an opening will be sufficiently large
to allow further solid detergent composition to be added but
25 not so large that it easily leaves the housing during use.
Preferably such an opening may be a slit.

Preferably the housing comprises a first and second sheets,
wherein at least one sheet is water-permeable and is
30 suitable for wiping textile fabrics, and the housing is
sealed continuously along at least 50% of its perimeter.

- 5 -

Hence, in this embodiment, the housing may be sealed all along its perimeter or alternatively left incompletely sealed thus forming an opening in the housing. If the housing is left incompletely sealed it is preferred that the housing is sealed continuously along less than 90% of its perimeter, preferably along from 60 to 80% of its perimeter. When the housing does comprise two sheets, in one embodiment one of the sheets is substantially water-impermeable. In another embodiment one sheet is more abrasive than the other to give further flexibility to the treatment of a wider range of textiles.

In order to assist the use of the article still further, the housing may also have a strap which holds the housing against the palm of the human hand during use.

In a further embodiment the article may comprise a pouch-forming sheet which is sealed continuously with the housing along from 50 to 80% of its perimeter thereby forming a compartment for the human hand.

20

The article is designed for use by the human hand. Preferably therefore the housing is preferably shaped to fit the palm of the hand for ease of use.

25 The Detergent Composition

The detergent composition which is contained within the housing can be a gel, tablet, bar, powder or paste, but it is preferably a solid detergent.

30

- 6 -

The solid detergent is designed to be rubbed against the fabrics which are desired to be washed. Therefore the detergent comprises a detergent bar, a powder, a tablet or mixtures thereof, preferably a bar. Non-soap detergent bars
5 which are already designed to be rubbed onto fabric textiles are particularly suitable.

If present as a bar it is formed by extrusion of a detergent composition. In preferred embodiments, the composition is
10 extruded using a plodder. In especially preferred embodiments, the composition undergoes a refining step in a refiner or preplodder prior to an extrusion from the plodder.

15 In this especially preferred embodiment, the composition is picked up by screws in their refiner/pre-plodder and transported through a refiner plate to form "noodles" which are dropped into a hopper seed of a plodder. Preferably, this is kept under reduced pressure to remove any absorbed
20 gases. In the plodder, material picked up from the hopper is transported by a set of screws to a nose cone section of the plodder where the composition is further compacted and forged, under the pressure built up, through an orifice of the required geometry for the final product.

25

Conditions for the extrusion of a detergent composition to form a bar will be readily apparent to those skilled in the art.

30

- 7 -

Coating of the Housing

One special feature of the present invention is the application of ingredients to the interior wall of the housing which supplement the action of the solid detergent composition. Such materials which are especially useful are those materials which are difficult to incorporate into bars such as a bleach ingredient, an enzyme, a perfume, a fluorescer or mixtures thereof. It is preferred that an enzyme is thus coated since they are particularly difficult to incorporate into bars.

Enzymes tend to deactivate due to shear, temperature, pH and moisture in a bar during processing and thereafter. The use of a housing allows the delivery and substantivity of these do-good ingredients to be increased. Perfumes are notoriously difficult to incorporate into a bar due to the high temperature processing. However the coating of perfume on the interior of the housing provides an excellent solution to this particular problem with bars.

Method of Use

The article of the present invention is primarily intended to be used in the washing of textile fabrics, preferably as part or the whole of a handwash. Alternatively the articles may be used to apply a pretreatment stage before a conventional washing step.

- 8 -

The article is used in combination with a solid detergent and is applied to the textile fabric by hand by the action of rubbing. This combination allows an effective method of application of solid detergent and gives an improved foam profile since less detergent is laid down on the fabric for a given detergency result.

Other Detergent Ingredients

10 The solid detergent composition contains conventional detergent ingredients, notably detergent-active materials (surfactants), and preferably also detergency builders.

15 Solid detergent compositions in accordance with the invention may suitably comprise from 5 to 60 wt% of detergent-active surfactant, from 10 to 80 wt% of detergency builder, and optionally other detergent ingredients to 100 wt%.

20 The detergent compositions will contain, as essential ingredients, one or more detergent active compounds (surfactants) which may be chosen from soap and non-soap anionic, cationic, nonionic, amphoteric and zwitterionic detergent active compounds, and mixtures thereof.

25 Many suitable detergent active compounds are available and are fully described in the literature, for example, in "Surface-Active Agents and Detergents", Volumes I and II, by Schwartz, Perry and Berch.

- 9 -

The preferred detergent active compounds that can be used are soaps and synthetic non-soap anionic and nonionic compounds. Non-soap anionic surfactants are especially preferred.

5

Non-soap anionic surfactants are well-known to those skilled in the art. Examples include alkylbenzene sulphonates, particularly linear alkylbenzene sulphonates having an alkyl chain length of C₈-C₁₅; primary and secondary alkylsulphates, particularly C₈-C₁₅ primary alkyl sulphates; alkyl ether sulphates; olefin sulphonates; alkyl xylene sulphonates; dialkyl sulphosuccinates; and fatty acid ester sulphonates. Potassium salts are generally preferred. A preferred anionic surfactant is linear alkylbenzene sulphonate.

15

Nonionic surfactants may optionally be present. These include the primary and secondary alcohol ethoxylates, especially the C₈-C₂₀ aliphatic alcohols ethoxylated with an average of from 1 to 20 moles of ethylene oxide per mole of alcohol, and more especially the C₁₀-C₁₅ primary and secondary aliphatic alcohols ethoxylated with an average of from 1 to 10 moles of ethylene oxide per mole of alcohol. Non-ethoxylated nonionic surfactants include alkylpolyglycosides, glycerol monoethers, and polyhydroxyamides (glucamide).

25

30

- 10 -

Cationic surfactants may optionally be present. These include quaternary ammonium salts of the general formula $R_1R_2R_3R_4N^+ X^-$ wherein the R groups are long or short hydrocarbyl chains, typically alkyl, hydroxyalkyl or
5 ethoxylated alkyl groups, and X is a solubilising anion (for example, compounds in which R_1 is a C₈-C₂₂ alkyl group, preferably a C₈-C₁₀ or C₁₂-C₁₄ alkyl group, R_2 is a methyl group, and R_3 and R_4 , which may be the same or different, are methyl or hydroxyethyl groups); and cationic esters (for
10 example, choline esters).

In an especially preferred cationic surfactant of the general formula $R_1R_2R_3R_4N^+ X^-$, R_1 represents a C₈-C₁₀ or C₁₂-C₁₄ alkyl group, R_2 and R_3 represent methyl groups, R_4
15 presents a hydroxyethyl group, and X^- represents a halide or methosulphate ion.

Optionally, amphoteric surfactants, for example, amine oxides, and zwitterionic surfactants, for example, betaines,
20 may also be present.

Preferably, the quantity of anionic surfactant is in the range of from 3 to 50% by weight of the total composition. More preferably, the quantity of anionic surfactant is in
25 the range of from 5 to 35 wt%, most preferably from 10 to 30 wt%.

- 11 -

Nonionic surfactant, if present, is preferably used in an amount within the range of from 1 to 20 wt%.

5 The total amount of surfactant present is preferably within the range of from 5 to 60 wt%.

The compositions may suitably contain from 10 to 80 wt%, preferably from 15 to 70 wt%, of detergency builder. Preferably, the quantity of builder is in the range of from
10 15 to 50 wt%.

The detergent compositions may contain as builder a crystalline aluminosilicate, preferably an alkali metal aluminosilicate, more preferably a sodium aluminosilicate
15 (zeolite).

The zeolite used as a builder may be the commercially available zeolite A (zeolite 4A) now widely used in laundry detergent powders. Alternatively, the zeolite may be
20 maximum aluminium zeolite P (zeolite MAP) as described and claimed in EP 384 070B (Unilever), and commercially available as Doucil (Trade Mark) A24 from Crosfield Chemicals Ltd, UK.

25 Zeolite MAP is defined as an alkali metal aluminosilicate of zeolite P type having a silicon to aluminium ratio not exceeding 1.33, preferably within the range of from 0.90 to 1.33, preferably within the range of from 0.90 to 1.20.

- 12 -

Especially preferred is zeolite MAP having a silicon to aluminium ratio not exceeding 1.07, more preferably about 1.00. The particle size of the zeolite is not critical. Zeolite A or zeolite MAP of any suitable particle size may
5 be used.

Also preferred according to the present invention are phosphate builders, especially sodium tripolyphosphate. This may be used in combination with sodium orthophosphate,
10 and/or sodium pyrophosphate.

Other inorganic builders that may be present additionally or alternatively include sodium carbonate, layered silicate, amorphous aluminosilicates.
15

Most preferably, the builder is selected from sodium tripolyphosphate, zeolite, sodium carbonate, and combinations thereof. Organic builders may optionally be present. These include polycarboxylate polymers such as
20 polyacrylates and acrylic/maleic copolymers; polyaspartates; monomeric polycarboxylates such as citrates, gluconates, oxydisuccinates, glycerol mono-di- and trisuccinates, carboxymethyloxysuccinates, carboxy-methyloxymalonates, dipicolinates, hydroxyethyl iminodiacetates, alkyl- and
25 alkenylmalonates and succinates; and sulphonated fatty acid salts.

Organic builders may be used in minor amounts as supplements to inorganic builders such as phosphates and zeolites.
30 Especially preferred supplementary organic builders are citrates, suitably used in amounts of from 5 to 30 wt%,

- 13 -

preferably from 10 to 25 wt%; and acrylic polymers, more especially acrylic/maleic copolymers, suitably used in amounts of from 0.5 to 15 wt%, preferably from 1 to 10 wt%.

5 Builders, both inorganic and organic, are preferably present in alkali metal salt, especially sodium salt, form. Detergent compositions according to the invention preferably do not contain a bleach system. However, a suitable bleach system may be coated on the inside of the article.

10

The detergent composition of the present invention may additionally contain fillers to add bulk to the product and/or to bind the product components, especially if the detergent composition is in the form of a bar.

15

If present, the fillers are generally mineral materials and may be soluble or insoluble. Typical examples include calcite, kaolin, talc, china clay, sodium sulphate or any other salt.

20

The detergent compositions preferably do not contain enzymes. However, enzymes may be coated on the inside of the article. Suitable enzymes include the proteases, amylases, cellulases, oxidases, peroxidases and lipases usable for incorporation in
25 detergent compositions.

30

Preferred proteolytic enzymes (proteases) are catalytically active protein materials which degrade or alter protein types of stains when present as in fabric stains in a hydrolysis reaction. They may be of any suitable origin, such as vegetable, animal, bacterial or yeast origin.

- 14 -

Proteolytic enzymes or proteases of various qualities and origins and having activity in various pH ranges of from 4-12 are available. Proteases of both high and low isoelectric point are suitable.

5

Other enzymes that may suitably be present include lipases, amylases, and cellulases including high-activity cellulases such as Carezyme (Trade Mark) ex Novo.

10 Antiredeposition agents, for example, cellulose esters and ethers, for example sodium carboxymethyl cellulose, may also be present.

15 The compositions may also contain soil release polymers, for example sulphonated and unsulphonated PET/POET polymers, both end-capped and non-end-capped, and polyethylene glycol/polyvinyl alcohol graft copolymers such as Sokolan (Trade Mark) HP22.

20 Especially preferred soil release polymers are the sulphonated non-end-capped polyesters described and claimed in WO 95 32997A (Rhodia Chimie).

25 The detergent compositions may also include one or more inorganic salts other than builder salts. These may include, for example, sodium bicarbonate, sodium silicate, sodium sulphate, magnesium sulphate, calcium sulphate, calcium chloride and sodium chloride. Preferred inorganic salts are sodium sulphate, sodium chloride, and combinations
30 thereof.

- 15 -

The detergent compositions may also contain other inorganic materials, for example, calcite, silica, amorphous aluminosilicate, or clays.

- 5 Other ingredients that may be present include solvents, hydrotropes, fluorescers, dyes, photobleaches, foam boosters or foam controllers (antifoams) as appropriate, fabric conditioning compounds, and perfumes.

EXAMPLES

10

I The Treatment Article

- Two near-elliptical pieces of porous rayon of major and minor linear dimensions of 10 cm and 14 cm were stitched
15 together around all of the perimeter to form a porous flexible housing. Into one of the pieces a slit of length 7cm was formed centrally along its major axis. The slit allows the insertion of a suitable detergent composition.

II Lather Measurement

- 20 A 'Rin supreme' non-soap detergent bar (commercially available in India) was inserted in the article and was dipped in a petri dish which contained 30 ml of 0°FH (French Hardness) water for 30 seconds. A 30 cm x 10 cm polycotton fabric was then rubbed with the bar alone and also with the
25 bar inserted into the article.

- The fabric wash washed in the main wash with 250 ml of appropriate hard water containing a commercial antifoam. The fabric was rubbed 20 times. The resultant foam height
30 was measured immediately and after 5 minutes. The fabric

- 16 -

was then rinsed in 500 ml hard water, rubbed 20 times, and the height of the foam measured immediately and after a further 5 minutes. The fabric was then rinsed for a second time in 500 ml hard water, rubbed 20 times, and the height of the foam measured immediately and after a further 5 minutes.

In each case the foam height was measured in three different places and an average was taken.

The following tables give the foam height in mm.

Table 1: 0 FH main wash water, with article

	Main Wash		First Rinse		Second Rinse	
	0 min	5 min	0 Min	5 Min	0 Min	5 Min
1	26	18	8	2	0	0
2	28	18	4	0	0	0
3	26	18	6	0	0	0
Avg	27	18	6	1	0	0

Table 2: 0 FH main wash water, without article

	Main Wash		First Rinse		Second Rinse	
	0 min	5 min	0 Min	5 Min	0 Min	5 Min
1	8	2	84	46	20	8
2	10	4	76	40	20	6
3	10	4	80	40	16	4
Avg	9	3	80	42	19	6

- 17 -

Table 3: 24 FH main wash water, with article

	Main Wash		First Rinse		Second Rinse	
	0 min	5 min	0 Min	5 Min	0 Min	5 Min
1	22	10	2	0	0	0
2	22	10	8	0	2	0
3	20	8	6	0	0	0
Avg	21	9	5	0	1	0

5 Table 4: 24 FH main wash water, without article

	Main Wash		First Rinse		Second Rinse	
	0 min	5 min	0 Min	5 Min	0 Min	5 Min
1	8	2	80	46	26	14
2	10	4	86	50	24	10
3	10	4	80	52	20	10
Avg	9	3	82	49	24	11

It is believed that the article allows the cleaning of
 10 clothes by applying less detergent. The porosity of the
 article generates more foam in the main wash but due to the
 presence of less detergent the foam level drops off
 dramatically during rinse. This provides consumers with an
 almost ideal foam profile.

15

III Detergency Tests

Detergency experiments were carried using a Rin supreme bar
 both alone and inside a article on both on WFK 20D and AS12
 20 test cloths. Detergency was measured with the combination

- 18 -

of enzyme, bleach and fluorescer coated on inside surface of the article and also with the coating of these three individual ingredients.

- 5 Enzyme - Mix of savinase and lipolase
 Fluorescer- photine C
 Bleach - Na Sulphite

One gram of each of these three ingredients were dissolved
10 in 25 ml water. This solution was then applied on the inner
 part of article on both the sides and allowed to dry. The
 application of the ingredients was done by uniformly adding
 the solution on the inside surface of the article. Three
 such articles were prepared by this method for repetition.
15 30 x 10 cm² AS12 monitor was used. The bar inserted in the
 article was dipped in 25-30 ml water for 30 secs. Before
 applying the bar (kept inside the article), the fabric was
 soaked in 100 ml of 0 FH water. After applying the bar and
 the brush, the fabric was rinsed twice using 100 ml of
20 water.

Experiments were also carried out with the article but
without enzyme, bleach and fluorescer and comparative data
was obtained from directly applying the bar on fabric
25 without the use of the article.

- 19 -

Table 5

Conditions	ΔR (UV excluded)	ΔR (UV included)
Bar with coated article	19.560	25.44
Bar with uncoated article	13.490	14.387
Bar alone	13.250	13.691

The effect of enzyme, bleach and fluorescer coated
 5 separately is given below:

Table 6

Conditions	ΔR (UV excluded)	ΔR (UV included)
Bar with enzyme coated article	15.769	16.05
Bar with bleach coated article	15.614	16.822
Bar with fluorescer coated article	13.308	21.404

- 20 -

It can be seen that the use of article did not increase the detergency whereas it enhanced the lather. It suggests that the abrasion due to the application of the rough side of the article on fabric is not enhancing detergency whereas it enhances lather. However the article enables the enhancement in detergency by allowing the use of enzyme, bleach and fluorescer, which are difficult if not impossible to add to a wash bar alone.

10 IV Rate of Wear

A 30 cm x 10 cm piece of fabric was dipped in 100 ml of water. The bar, both alone and inside the article, was rubbed on the surface of the fabric for 1 minute. The bar was allowed to dry for an hour. This procedure was repeated five times to give a total of 6 minutes rubbing time. This was repeated three times and an average was taken. The final weight of the bar was measured as a percentage of the initial weight and the results are given below:

20

Table 7

	Weight% left at end	
	Without article	With article
1	83.2	96.75
2	83.8	96.44
3	81.9	95.82
Avg	82.6	97.81

- 21 -

These results appear to confirm that less detergent is deposited on the fabric when the applicator is used than when it is not. This therefore allows current solid detergent products to be used for a longer period and
5 provide cost savings to the consumer.

- 22 -

CLAIMS

1. A method of treating a textile fabric with the human
hand by contacting the textile with a fabric treatment
5 article designed to be held by the human hand in the
presence of water, the article comprising a flexible
porous housing, the housing containing a detergent
composition within it, characterised in that the
interior of the housing is coated with a bleach
10 ingredient, an enzyme, a perfume, a fluorescer or
mixtures thereof, preferably an enzyme.
2. A method as claimed in claim 1, characterised in that
the detergent is a solid detergent.
15
3. A method as claimed in claim 1 or claim 2,
characterised in that the housing contains an opening.
4. A method as claimed in any preceding claim, wherein the
20 housing comprises first and second sheets,
characterised in that at least one sheet is water-
permeable and is suitable for wiping textile fabrics,
and the pouch is sealed continuously along at least 50%
of its perimeter.
25
5. A method as claimed in claim 4, characterised in that
the housing is sealed continuously along less than 90%
of its perimeter.

- 23 -

6. A method as claimed in claim 4 or claim 5,
characterised in that the pouch is sealed continuously
along from 60 to 80% of its perimeter.
- 5 7. An article as claimed in claim 4, characterised in that
it is sealed along all its perimeter.
8. A method as claimed in any preceding claim,
characterised in that at least part of the housing is
10 made from non-woven material.
9. A method as claimed in claim 8, characterised in that
at least part of the housing is made from rayon.
- 15 10. A method as claimed in any preceding claim,
characterised in that the article has a strap attached
which holds the article in the palm of the hand during
use.
- 20 11. A method as claimed in any preceding claim,
characterised in that the detergent composition is in
the form of a soap or non-soap detergent bar, a powder,
a tablet or mixtures thereof, preferably a bar.
- 25 12. A fabric treatment article comprising a flexible porous
housing, characterised in that the inside of the
housing is coated in a bleach ingredient, an enzyme, a
perfume, a fluorescer or mixtures thereof.

- 24 -

13. An article as claimed in claim 12, characterised in that the housing comprises a soap or non-soap detergent bar.

INTERNATIONAL SEARCH REPORT

 Internat ublication No
 PCT/EP 03/08387

 A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 D06F3/04

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 D06F A47L A47K 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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 1 292 982 A (WOLF MELANIE) 28 January 1919 (1919-01-28)	1,2
A	column 8, line 100-110; figures 1-3,5-7,10-12	10,11
X	DE 72 23 498 U (MEDTRONIC GMBH) 14 September 1972 (1972-09-14) the whole document	1
X	US 3 698 095 A (FURGAL HENRY P ET AL) 17 October 1972 (1972-10-17) the whole document	12
X	US 4 652 390 A (SCHMIDT WILLIAM W ET AL) 24 March 1987 (1987-03-24) column 7, line 1-6 column 2, line 59,60; claim 20	12
	--- -/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *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
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

17 November 2003

Date of mailing of the international search report

02/12/2003

Name and mailing address of the ISA

 European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Ureta, R

INTERNATIONAL SEARCH REPORT

Internati ication No
PCT/EP 03/08387

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 254 139 A (HENDRICKSON THOMAS C ET AL) 3 March 1981 (1981-03-03) column 8, line 1-10; figure 1 ---	12
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 13, 5 February 2001 (2001-02-05) -& JP 2000 300489 A (SHIMIZU HIROHARU), 31 October 2000 (2000-10-31) abstract -----	3

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internat Application No
PCT/EP 03/08387

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 1292982	A	28-01-1919	NONE
DE 7223498	U	NONE	
US 3698095	A	17-10-1972	NONE
US 4652390	A	24-03-1987	AU 581596 B2 23-02-1989 AU 5915386 A 08-01-1987 CA 1245943 A1 06-12-1988 DK 300086 A 20-02-1987 EP 0208466 A2 14-01-1987 FI 862689 A 26-12-1986 GR 861656 A1 26-09-1986 JP 62048800 A 03-03-1987
US 4254139	A	03-03-1981	AR 226196 A1 15-06-1982 AT 384235 B 12-10-1987 AT 614380 A 15-03-1987 AU 544034 B2 16-05-1985 AU 6554880 A 25-06-1981 BE 886690 A1 16-04-1981 BR 8008043 A 23-06-1981 CA 1151809 A1 16-08-1983 CH 652771 A5 29-11-1985 DE 3046841 A1 03-09-1981 DK 544280 A ,B, 21-06-1981 ES 8202602 A1 01-05-1982 FR 2472046 A1 26-06-1981 GB 2066309 A ,B 08-07-1981 GR 72845 A1 07-12-1983 IT 1146949 B 19-11-1986 JP 1043074 B 18-09-1989 JP 1561449 C 31-05-1990 JP 56100100 A 11-08-1981 MX 151474 A 29-11-1984 MY 43987 A 31-12-1987 NL 8006894 A 16-07-1981 NO 803722 A ,B, 22-06-1981 NZ 195694 A 28-02-1985 PH 16013 A 20-05-1983 PT 72228 A ,B 01-01-1981 SE 450500 B 29-06-1987 SE 8008478 A 21-06-1981 ZA 8007681 A 28-07-1982
JP 2000300489	A	31-10-2000	NONE