BRIGARD&
CASTRO
PROPIEDAD INTELECTUAL

CARRERA 7 # 71 – 21 TORRE B – PISO 4
BOGOTÁ – COLOMBIA
TEL: (571) 744 22 00
FAX: (571) 742 22 00 – (571) 3214045
www.bc.com.co

AS: 102.755

Señores
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES
E. S. D.

REF.: Expediente No. 07 001.972 - Solicitud de Patente FASE NACIONAL
Corresp. a la Solicitud Internacional PCT/US2005/020327.
a nombre de: **COLGATE-PALMOLIVE COMPANY**.
Titulada: BARRA DE JABÓN PARA MASAJE.

JUAN PABLO CADENA SARMIENTO, vecino de Bogotá, portador de la tarjeta profesional No. 57492 del Consejo Superior de la Judicatura, obrando como apoderado de la Sociedad **COLGATE-PALMOLIVE COMPANY**, según lo acredita el documento de poder presentado en esa División, de acuerdo con el Artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina, me permito solicitar que se examine si la invención contenida en la solicitud en referencia es patentable.

De acuerdo con lo anterior, me permito anexar el recibo oficial de caja No. 08-11,099 por valor de $420.000.

De la Señora Jefe atentamente,

JUAN PABLO CADENA SARMIENTO
C.C. No. 80.410.337 de Usaquén
T.P. No. 57492 del C.S.J.
Cra 7 No. 71-21 Torre B, Piso 4

Bogotá, 1 de abril de 2008
CHP/MEV/jpg

As. 102755 81

82

2

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 08 - 11,099
FECHA : FEBRERO 11 DE 2008

No. 07-001972- -00002-0000
Fecha 2008-04-02 17:19:19 Dep. 2020 NUECREACIONI
Tie. 1 PA ENTEIYII Eve. 378 FASENACIONALI
Act 538 PETICION Folios: 2

***** C O N S I G N A C I O N *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
BRIGARD & CASTRO LTDA	CONSIGNACION	BANCO DE BOGOTA	062754387	127822	08/02/2008	45,422,000.00

***** C O N C E P T O *****

CANT.	RENTISTICO	CONCEPTO		TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	85	EXAMEN DE PATENTABILIDAD DE INVEN	420,000.00
			TOTAL : $	420,000.00

SON: CUATROCIENTOS VEINTE MIL PESOS

ONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No._____

Industria y Comercio
SUPERINTENDENCIA

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 07-01972

EL EXTRACTO DE LA PRESENTE SOLICITUD DE **PATENTE DE INVENCIÓN**

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **587** DE

FECHA **18 DE ENERO DE 2008** EL TÉRMINO HÁBIL SEÑALADO POR LA LEY

EXPIRA EL **16 DE ABRIL DE 2008**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI _____ NO ____X____

US006723690B1

(12) **United States Patent**
Aronson et al.

(10) **Patent No.: US 6,723,690 B1**
(45) **Date of Patent: *Apr. 20, 2004**

(54) **PROCESS FOR MAKING EXTRUDED MULTIPHASE BARS EXHIBITING ARTISAN-CRAFTED APPEARANCE**

(75) Inventors: **Michael Paul Aronson**, West Nyack, NY (US); **Badreddine Ahtchi-Ali**, Martinsville, NJ (US); **Sergio Roberto Leopoldino**, Sousas (BR); **Gregory Jay Mc Fann**, North Bergen, NJ (US); **Mariangela Gomes De Oliveira Sichmann**, Campinas (BR)

(73) Assignee: **Unilever Home & Personal Care USA, division of Conopco, Inc.**, Greenwich, CT (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **10/340,153**

(22) Filed: **Jan. 10, 2003**

(51) **Int. Cl.**[7] **A61K 7/50**

(52) **U.S. Cl.** **510/146**; 510/141; 510/147; 510/148; 510/152; 510/153; 510/155; 510/449

(58) **Field of Search** 510/147, 148, 510/152, 449, 141, 146, 151, 153, 155

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,673,294	A	6/1972	Matthaei	
3,884,605	A	5/1975	Grelon	
3,940,220	A	2/1976	D'Arcangeli	
3,993,722	A	11/1976	Borcher et al.	
4,092,388	A	5/1978	Lewis	
4,310,479	A	1/1982	Ooms et al.	
5,935,917	A	8/1999	Farrell et al.	
5,965,501	A	* 10/1999	Rattinger et al.	510/146
5,972,859	A	10/1999	Farrell et al.	
5,981,464	A	11/1999	He et al.	
6,383,999	B1	5/2002	Coyle et al.	
6,390,797	B1	5/2002	Myers	

OTHER PUBLICATIONS

Aronson et al., 10/340,468, Jan. 10, 2003, Methods of Cleaning Moisturizing and Refreshing Using Multiphase Bars Having Artisan–Crafted Appearance.

Aronson et al., 10/340,457, Jan. 10, 2003, Extruded Multiphase Bars Exhibiting Artisan–Crafted Appearance.

* cited by examiner

Primary Examiner—Necholus Ogden
(74) *Attorney, Agent, or Firm*—Ronald A. Koatz

(57) **ABSTRACT**

The present invention relates to a process for making a multiphase personal wash bar having artisan crafted appearance. The bars are made by combining the second solid mass phase to a first continuous phase wherein the hardness of the second phase is at least twice the hardness of noodles forming the continuous phase.

6 Claims, No Drawings

mixed with a second chip comprised predominantly of polyether and containing an emulsified benefit agent. The polyether chips are friable by design so that they disperse when mixed with the soap chips.

None of these patents teach that the discontinuous phase of a multiphase bar should be at least twice as hard as the soap mass that will become the continuous phase of the bar when these two phases first come into contact prior to the final extrusion. For example many patents teach the combining of different color noodles in the vacuum chamber of a two state refiner-plodder. However none of these patents teach that one noodle should be at leas twice as hard as the other colored noodle when these noodles are initially combined.

Further the art does not teach appropriate plasticizers and hardening agents that enable these rheological requirements to be met. In fact the large majority of the prior art emphasize engineering approaches (apparatus and different processes) to overcome problems in making acceptable multicolor soaps using soaps of uniform composition apart from coloring agents.

BRIEF DESCRIPTION OF THE INVENTION

The subject invention describes multiphase personal washing bars that have a artisan-crafted appearance that can be made in a high speed extrusion process by ensuring that the hardness of the discontinuous phase is sufficiently greater than the continuous phase so that it does not excessively deform during extrusion.

More specifically, the invention comprises:

a) a continuous solid phase covering about 65% to 99% by wt final bar composition and comprising 25–90% of the continuous phase composition of a surfactant base suitable for cleansing the skin,

b) a discontinuous phase (present as one or more "domains" of discontinuous phase within the continuous phase) comprising about 1 to about 35% of final bar composition and that comprises a water soluble or water dispersible solid matrix comprising at least 1 wt % surfactant wherein said discontinuous phase has its longest dimension between about 3 and about 75 mm

wherein the hardness of the continuous phase is in the range of 1.9 to 2.5 bar. (1 bar equals 100,000 Pascals) when measured at a temperature between 33 and 50° C., preferably 30 and 42° C. wherein the ratio, λ, defined as the hardness of the discontinuous phase measured at a temperature of 25° C. divided by the hardness of the continuous phase measured at a temperature of 33° C. is greater than 2.0; and wherein said hardness values are measured by the Cylinder Impaction Test;

wherein the discontinuous phase comprises 1 to about 25 wt % of the bar, and

wherein the bar has a descriptive visual grading score of at least 3.0 when measured by Visual Discrimination Panel Test.

The temperature noted above approximately reflects the thermal conditions of each phase during the time of extrusion and, without wishing to be bound by theory, when these conditions are met, the discontinuous phase is believed to not deform excessively, under shear, and therefore, is believed to allow formation of the artisan-type bars.

A second embodiment of the invention, comprises a process for making a bars having an artisan crafted appearance by extrusion wherein said process comprises:

1) adding to noodles comprising the continuous phase of a toilet bar mass that is at a temperature about 33 to 50° C., a second solid mass that is in the form of discrete particles having at least one dimension greater that 3 mm to form a mixture, wherein at the time of addition, the hardness values measured by the Cylinder Impaction Test;

2) extruding the mixture so formed in step 1) to form an extruded composite mass comprising a continuous toilet bar mass and a disontinuous phase of the second solid mass;

3) cutting and forming the extruded mass into a bar

wherein the discontinuous phase comprises 1 to about 25 wt % of the bar, and

wherein the bar has a visual grading score of at least 3.0 when measured by Visual Discrimation Panel Test.

BRIEF DESCRIPTION OF THE DRAWINGS

DETAILED DESCRIPTION OF THE INVENTION

The bars of this invention comprise a continuous phase and a discontinuous phase. A critical aspect of the invention is that the hardness of these phases meet specific requirements. In a second embodiment, the invention comprises preparing a continuous phase and discontinuous phase solid mass (defined by difference in hardness), adding together in a mixer at defined temperature range, extruding, and cutting to form final bars. The bars and component phases are discussed in greater detail below

Continuous Solid Soap Phase

The continuous phase comprises 65 wt % to about 99 wt % of the bar composition, preferably 75 wt % to 95 wt% and most preferably 80 to 90 wt %. A key requirement is that the hardness as measured by the Cylinder Impaction Test described below has a value falling in the range of 1.9 to 2.5 bars when measured at a temperature between 33 and 42° C. It has been found from experience that when the hardness of the continuous phase falls within this range, it is possible to form bars by extrusion at a high rate. By high rate is meant in excess of 200 bars per minute and preferably greater than 300 bars per minute.

The continuous phase comprises a surfactant or detergent base suitable for cleaning the skin and optionally a plasticizing agent used to control its consistency.

It has also been found preferable for the continuous phase to have a certain degree of plasticity so that it adheres well to the discontinuous phase. The plastic zone size, r, as measured by Three-Point Bend Test described in the Test Methodology section provides a relevant measure of plasticity or brittleness. The continuous phase should have a plastic zone radius greater than 2.0 mm and preferably greater than 2.5 mm. A lower value of the plastic zone size represents a continuous phase sample that is more brittle, a greater value represents a more plastic sample.

It has been found that when the plastic zone radius of the continuous phase is greater than 2.0 mm, a cohesive bar junction between the continuous and discontinuous phase is favored, i.e., the bars don't crack

Surfactant Base

The primary component of the continuous phase is a surfactant base suitable for cleansing the skin. Generally the surfactant base comprises 25–90 wt % of the continuous phase, preferably between 50 and 80 wt %.

One useful surfactant base comprises fatty acid soaps. The term "soap" is used herein in its popular sense, i.e., the alkali metal or alkanol ammonium salts of aliphatic, alkane-, or alkene monocarboxylic acids. Sodium, potassium, magnesium, mono-, di- and tri-ethanol ammonium cations,

or combinations thereof, are suitable for purposes of this invention. In general, sodium soaps are used in the compositions of this invention, but from about 1% to about 25% of the soap may be potassium or magnesium soaps. The soaps useful herein are the well known alkali metal salts of natural of synthetic aliphatic (alkanoic or alkenoic) acids having about 8 to 22 carbon atoms, preferably about 8 to about 18 carbon atoms. They may be described as alkali metal carboxylates of acrylic hydrocarbons having about 8 to about 22 carbon atoms.

Soaps having the fatty acid distribution of coconut oil may provide the lower end of the broad molecular weight range. Those soaps having the fatty acid distribution of peanut or rapeseed oil, or their hydrogenated derivatives, may provide the upper end of the broad molecular weight range.

It is preferred to use soaps having the fatty acid distribution of coconut oil or tallow, or mixtures thereof, since these are among the more readily available fats. The proportion of fatty acids having at least 12 carbon atoms in coconut oil soap is about 85%. This proportion will be greater when mixtures of coconut oil and fats such as tallow, palm oil, or non-tropical nut oils or fats are used, wherein the principle chain lengths are C16 and higher. Preferred soap for use in the compositions of this invention has at least about 85% fatty acids having about 12 to 18 carbon atoms.

Coconut oil employed for the soap may be substituted in whole or in part by other "high-lauric" oils, that is, oils or fats wherein at least 50% of the total fatty acids are composed of lauric or myristic acids and mixtures thereof. These oils are generally exemplified by the tropical nut oils of the coconut oil class. For instance, they include: palm kernel oil, babassu oil, ouricuri oil, tucum oil, cohune nut oil, murumuru oil, jaboty kernel oil, khakan kernel oil, dika nut oil, and ucuhuba butter.

A preferred soap is a mixture of about 30% to about 40% coconut oil and about 60% to about 70% tallow. Mixtures may also contain higher amounts of tallow, for example, 15% to 20% coconut and 80 to 85% tallow.

The soaps may contain unsaturation in accordance with commercially acceptable standards. Excessive unsaturation is normally avoided.

Soaps may be made by the classic kettle boiling process or modern continuous soap manufacturing processes wherein natural fats and oils such as tallow or coconut oil or their equivalents are saponified with an alkali metal hydroxide using procedures well known to those skilled in the art. Alternatively, the soaps may be made by neutralizing fatty acids, such as lauric (C12), myristic (C14), palmitic (C16), or stearic (C18) acids with an alkali metal hydroxide or carbonate.

A second type of surfactant base useful in the practice of this invention comprises non-soap synthetic type detergents—so called syndet bases.

Anionic Surfactants

The anionic surfactant may be, for example, an aliphatic sulfonate, such as a primary alkane (e.g., C_8–C_{22}) sulfonate, primary alkane (e.g., C_8–C_{22}) disulfonate, C_8–C_{22} alkene sulfonate, C_8–C_{22} hydroxyalkane sulfonate or alkyl glyceryl ether sulfonate (AGS); or an aromatic sulfonate such as alkyl benzene sulfonate.

The anionic may also be an alkyl sulfate (e.g., C_{12}–C_{18} alkyl sulfate) or alkyl ether sulfate (including alkyl glyceryl ether sulfates). Among the alkyl ether sulfates are those having the formula:

$$RO(CH_2CH_2O)_nSO_3M$$

wherein R is an alkyl or alkenyl having 8 to 18 carbons, preferably 12 to 18 carbons, n has an average value of greater than 1.0, preferably between 2 and 3; and M is a solubilizing cation such as sodium, potassium, ammonium or substituted ammonium. Ammonium and sodium lauryl ether sulfates are preferred.

The anionic may also be alkyl sulfosuccinates (including mono- and dialkyl, e.g., C_6–C_{22} sulfosuccinates); alkyl and acyl taurates, alkyl and acyl sarcosinates, sulfoacetates, C_8–C_{22} alkyl phosphates and phosphates, alkyl phosphate esters and alkoxyl alkyl phosphate esters, acyl lactates, C_8–C_{22} monoalkyl succinates and maleates, sulphoacetates, and acyl isethionates.

Sulfosuccinates may be monoalkyl sulfosuccinates having the formula:

$$R^4O_2CCH_2CH(SO_3M)CO_2M;$$

amido-MEA sulfosuccinates of the formula

$$R^4CONHCH_2CH_2O_2CCH_2CH(SO_3M)CO_2M$$

wherein R^4 ranges from C_8–C_{22} alkyl and M is a solubilizing cation; and

amido-MIPA sulfosuccinates of formula

$$RCONH(CH_2)CH(CH_3)(SO_3M)CO_2M$$

where M is as defined above.

Also included are the alkoxylated sulfosuccinates; wherein n=1 to 20; and M is as defined above.

Sarcosinates are generally indicated by the formula $RCON(CH_3)CH_2CO_2M$, wherein R ranges from C_8 to C_{20} alkyl and M is a solubilizing cation.

Taurates are generally identified by formula $R^2CONR^3CH_2CH_2SO_3M$ wherein R^2 ranges from C_8–C_{20} alkyl, R^3 ranges from C_1–C_4 alkyl and M is a solubilizing cation.

Another class of anionics are carboxylates such as follows:

$$R—(CH_2CH_2O)_nCO_2M$$

wherein R is C_8 to C_{20} alkyl; n is 0 to 20; and M is as defined above.

Another carboxylate which can be used is amido alkyl polypeptide carboxylates such as, for example, Monteine LCQ(R) by Seppic.

Another surfactant which may be used are the C_8–C_{18} acyl isethionates. These esters are prepared by reaction between alkali metal isethionate with mixed aliphatic fatty acids having from 6 to 18 carbon atoms and an iodine value of less than 20. At least 75% of the mixed fatty acids have from 12 to 18 carbon atoms and up to 25% have from 6 to 10 carbon atoms.

Acyl isethionates, when present, will generally range from about 0.5–15% by weight of the total composition. Preferably, this component is present from about 1 to about 10%.

The acyl isethionate may be an alkoxylated isethionate such as is described in Ilardi et al., U.S. Pat. No. 5,393,466, hereby incorporated by reference into the subject application.

Another surfactant which may be used are C_8 to C_{22} neutralized fatty acids (soap). Preferably, the soap used are straight chain, saturated C_{12} to C_{18} neutralized fatty acids.

In general the anionic component will comprise from about 1 to 20% by weight of the composition, preferably 2 to 15%, most preferably 5 to 12% by weight of the composition.

Zwitterionic and Amphoteric Surfactants

Zwitterionic surfactants are exemplified by those which can be broadly described as derivatives of aliphatic quaternary ammonium, phosphonium, and sulfonium compounds,

matrix and optionally a hardening agent. By water-soluble or water-dispersible is meant the ability of the matrix to disintegrate and disperse when the bar is rubbed against the skin in the presence of water during use. A convenient measure of this property is the intrinsic wear rate the matrix material exhibits under controlled rubbing conditions as described in the Test Methodology section. A suitable matrix should have an intrinsic wear rate between 0.012 and 0.05 gm/cm2, preferably 0.02 to 0.03 gm/cm2, when measured by the Controlled Rubbing Test. Thus, for example material like polyethylene could be used a component of the matrix, e.g., as small beads, but is not suitable by itself as the matrix because its intrinsic wear rate is essentially zero.

The discontinuous phase domains can have a variety of shapes. For example, the domains can appear in cross section to approximate oblate or prolate spheroids, disks, cylinders, prisms, rhomboids, cubes or crescents. They can also have irregular shapes. However, a unifying feature is that their longest dimension be between about 3 and about 70 millimeters in length, preferably 5 to 50 and most preferably between 5 and 35 millimeters.

A key requirement is that the ratio, λ, defined as

$$\lambda = \frac{\text{Hardness of Discontinuous Phase@25° C.}}{\text{Hardness of Continous Phase@33° C.}}$$

is greater than 2.0, preferably greater than 2.5, and most preferably greater than 3.0. Here the hardness is measured by the Cylinder Impaction Test described in the Test Methodology section below. There are several methods known in the art to measure the hardness of material like soaps. The Cylinder Impaction Test is a convenient measure in a manufacturing context. However, other measures like the Penetrometer Test described in the Methodology Section can also be employed and the values correlated to the Cylinder Impaction Test. The key point is that the hardness ratio of the two phases measured at temperatures approximating the temperatures of each of the respective phases when they are first brought into contact during the manufacture of the bar be greater than 2. For example, if the discontinuous phase particles and noodles of the cintinuous phase soap mass are combined in the vacuum chamber of a two stage plodder prior to final extrusion, the hardness of the two phases should iffer by at least a factor of two.

It has been found that when this requirement is met, the discontinuous phase can be added as a sufficiently hard solid during high speed extrusion so that it does not undergo excessive deformation and homogenization. It has also been found that this requirement of λ>2.0, also helps the discontinuous phase to remain prominent at the surface of the bar after stamping without the need for wasteful trimming.

Water-soluble or Water-dispersible Matrix

A key component of the discontinuous phase is a surfactant that is solid at room temperature. The surfactant may be any of those described above in connection with the continuous phase. The surfactant is present in the discontinuous phase at a level between 1 and about 85 Wt %, preferably between 30 and 75 wt %, more preferably 50 and 75%.

A number of surfactants are suitable as a component of the dispersed phase matrix and, as noted above, most of the surfactants described above for the continuous phase can be employed here as well.

Particularly useful matrix surfactants are the sodium, potassium and triethanolamine soaps of long chain (C10–C18) fatty acids, acyl isethionate especially cocoyl isethionate, alkyl taurates, alkyl suflates and sulfonates, alkyl ethoxy sulfates, long chain alkyl ethoxylates, alkylglycosides, fatty acid esters of glycerol and sorbitol, and mixtures thereof.

Another useful matrix forming material is polyalkylene glycol having a melting point above 30° C. Preferably, the polyalkylene glycol should have a molecular weight greater than 4,000 to about 100,000, preferably 4000 to 20,000, most preferably 4000–10,000. Minimum MW of about 4000 is believed required so that carrier is solid at room temperature. An especially preferred carrier is polyethylene glycol, for example Carbowax PEG 8000, RTM® from Union Carbide.

Hydrophobically modified polyalkylene glycol (HMPAG) having broad molecular weight 4,000 to 25,000, preferably 4,000 to 15,000 can also be employed. Generally, the polymers will be selected from polyalkylene glycols chemically and terminally attached by hydrophobic moieties, wherein the hydrophobic moiety can be derivatives of linear or branched alkyl, aryl, alkylaryl, alkylene, acyl (e.g., preferably C_8 to C_{40}; fat and oil derivatives of alkylglyceryl, glyceryl, sorbitol, lanolin oil, coconut oil, jojoba oil, castor oil, almond oil, peanut oil, wheat germ oil, rice bran oil, linseed oil, apricot pits oil, walnuts, palm nuts, pistachio nuts, sesame seeds, rapeseed, cade oil, corn oil, peach pit oil, poppyseed oil, pine oil, soybean oil, avocado oil, sunflower seed oil, hazelnut oil, olive oil, grapeseed oil, and safflower oil, Shea butter, babassu oil, etc. The total content of the hydrophobic moiety is preferably 3% wt. to 15% wt. per mole of the defined HMPAG.

Fatty acids, fatty acid esters, and fatty alcohols can be incorporated as part of the matrix forming the discontinuous phase as long as the matrix remains water soluble or water dispersible. Generally, the fatty group has a chainlength between 12 and 22 carbon atoms. Particularly suitable fatty acid esters is glycerol monolaurate.

Still other useful matrix materials in the invention are derived from polysaccarides especially starch. These include unmodified starch; starch modified to alter its water solubility, dispersability, and swelling, and hydrolyzed starch such as maltodextran.

Hardening Agents

As with the continuous phase It is may be possible to tailor the surfactant base of the discontinuous phase so that its hardness falls in the range required to mass-produce by high speed extrusion a multi-phase bar with an artisan crafted appearance. This can be done, for example, by adjusting the titre of the fat charge to achieve a harder mass, e.g., by hydrogenation or by manipulating the water content. However, this can compromise user properties and/or impact cost. Consequently, it is often beneficial to employ a hardening agent in the discontinuous phase.

Polyols and inorganic electrolytes are useful hardening agents when the discontinuous phase is comprised predominantly of fatty acid soaps. Polyols are defined here are molecules having multiple hydroxyl groups. Preferred polyols include glycerol, propylene glycol, sorbitol, and polyvinyl alcohol.

Preferred inorganic electrolytes include monovalent chloride salts, especially sodium chloride; monovalent and divalent sulfate salts like sodium sulfate; sodium carbonate; monovalent aluminate salts, monovalent phosphates, phosphonates, polyphosphate salts; and mixtures thereof. Further, the bar composition of the invention may include 0 to 25% by weight of crystalline or amorphous aluminium hydroxide. The said aluminium hydroxide can be generated in-situ by reacting fatty acids and/or non-fatty mono- or polycarboxylic acids with sodium aluminate, or can be prepared separately by reacting fatty acids and/or non-fatty mono- or polycarboxylic acids with sodium aluminate and adding the reaction product to the soap.

Another class of hardening agents are insoluble inorganic or mineral solids that can structure the discontinuous phase by network formation or space-filling. These include fumed, precipitated or modified silica, alumina, calcium carbonate,

kaolin, and talc. Alumino-silicate clays especially synthetic or natural hectorites can also be used.

Optional Ingredients

In addition to the ingredients described above, the bar can also contain a variety of optional ingredients used to increase its shelf life, aesthetics or functionality. The ingredients can be found in continuous or discontinuous phase. These include chelating agents such as EDTA, preservatives like dimethyloldimethylhydantoin (Glydant XL 1000), parabens, sorbic acid antioxidants such as, for example, butylated hydroxytoluene (BHT) and a variety of natural and synthetic perfume components. Particularly useful optional ingredients are skin benefit agents used to deliver some useful end benefit to the skin and optical modifiers used to confer a unique appearance to the bar.

Skin Benefit Agents

The first class of ingredients and nutrients used to moisturize and strenghten the skin. These include:

a) vitamins such as vitamin A and E, and vitamin alkyl esters such as vitamin C alkyn esters;

b) lipids such as cholesterol, cholesterol esters, lanolin, cerimides, sucrose esters, and pseudo-ceramides;

c) liposome forming materials such as phospholipids, and suitable smphiphilic molecules having two long hydrocarbon chains;

d) essietial fatty acids, poly unsaturated fatty acids, and sources of these materials;

e) triglycerides of unsaturated fatty acids such as sunflower oil, primrose oil, avocado oil, almond oil;

f) vegetable butters formed from mixtures of saturated and unsaturated fatty acids such as Shea butter;

g) mineral such as sources of zinc, magnesium, and iron;

A second type of skin benefit agent is a skin conditioner used to provide a moisturized feel to the skin. Suitable skin conditioners include:

a) silicone oils, gums and modifications thereof such as linear and cyclic polydimethylsiloxanes, amino, alkyl, and alkylaryl silicone oils;

b) hydrocarbons such as liquid paraffins, petrolatum, vasaline, microcrystalline wax, ceresin, squalene, pristan, paraffin wax and mineral oil;

c) conditioning proteins such as milk proteins, silk proteins and glutins;

d) cationic polymers as conditioners which may be used include Quatrisoft LM-200 Polyquaternium-24, Merquat Plus 3330-Polyquaternium 39; and

Jaguar® type conditioners.

e) humectants such as glycerol, sorbitol; and urea

f) emmolients such as esters of long chain fatty acids, such as isopropyl palmitate and cetyl lactate;

A third type of benefit agent is a deep cleansing agents. These are defined here as ingredients that can either increase the send of refreshment immediately after cleansing or can provide a sustained effect on skin problems that are associated with incompete cleansing. Deep cleansing agents include:

a) antimicrobials such as 2-hydroxy-4,2',4'-trichlorodiphenylether (DP300), 2,6-dimethyl-4-hydroxychlorobenzene (PCMX), 3,4,4'-trichlorocarbanilide (TCC), 3-trifluoromethyl-4,4'-dichlorocarbanilide (TFC), benzoyl peroxide, zinc salts, tea tree oil,

b) anti-acne agents, such as salicylic acid, lactic acid, glycolic acid, and citric acid, and benzoyl peroxide (also an antimicrobial agent),

c) oil control agents including sebum suppressants, mattifiers such as silica, titanium dioxide, oil absorbers, such as microsponges,

d) astringents including tannins, zinc and aluminum sales, plant extracts such as from green tea and Witchhazel (Hammailes).

e) scrub and exfolliating particles, such as polyethylene spheres, agglomerated silica, sugar, ground pits, seeds, and husks such as from walnuts, peach, avocado, and oats, salts,

f) cooling agents such as menthol and its various derivatives and lower alcohols

g) fruit and herbal extracts

h) skin calming agents such as aloe vera

i) essential oils such as mentha, jasmine, camphor, white cedar, bitter orange peel, ryu, turpentine, cinnamon, bergamot, citrus unshiu, calamus, pine, lavender, bay, clove, hiba, eucalyptus, lemon, starflower, thyme, peppermint, rose, sage, menthol, cineole, eugenol, citral, citronelle, borneol, linalool, geranoil, evening primrose, camphor, thymol, spirantol, penene, limonene and terpenoid oils;

Other benefit agents that can be employed include anti-ageing compounds, sunscreens, and skin lightening agents.

When the benefit agent is oil, especially low viscosity oil, it may be advantageous to pre-thicken it to enhance its delivery. In such cases, hydrophobic polymers of the type described in U.S. Pat. No. 5,817,609 to He et al may be employed, which is incorporated by reference into the subject application.

The benefit agent generally comprises about 0–25% by wt. of the composition, preferably 5–20%, and most preferably between 2 and 10%. Although the benefit agent can be added to either phase of the bar, in some cases it is especially desired to add the benefit agent to the discontinuous phase.

A final group of optional ingredients is optical modifiers which are defined as materials that modify the optical texture or transparency of the phases or introduce a pattern to increase the distinctiveness of one or both of the phases. Examples of suitable optical modifiers include:

a) transparency enhancing solvents such as glycerol, propylene glycol, sorbitol, or triethanolamine,

b) speckles/bits such as ground fruit pits, seeds, polyethylene beads, mineral agglomerates, and loofha,

c) reflective plate-like particles such as mica,

d) pearlizing agents such as coated micas, and certain waxes

e) wax/plastic slivers that resemble for example fruits slices,

f) Vegetable or fruit slivers

g) mattefiers such as TiO_2

h) mixtures of the above

Further, either the continuous or phase can be made multicolored, e.g., striped, through the judicious use of dye as is well known in the art.

Bar Properties

In addition to the ratio of hardness of continuous phase to discontinuous phase, λ, described about, it is also critical to the invention that the bar have a descriptive visual scoring of at least 3.0 measured by a visual discrimination panel test as defined below:

The bars of the invention also preferably should have a certain plasticity. This is defined such that the continuous phase has a plastic radius measured in a three-point test for plasticity or brittleness also described below. The plastic radius of the continuous phase should be greater than 2 mm, preferably greater than 2.5 when measured at temperature of 40° C. in this test.

Visual Discrimination Panel Test

Five bar samples taken at different times in a single test run are placed on a neutral gray background in a conventional viewing box. Above the test samples are placed high quality color photographs of "standard bars" that are agreed by a panel of five experts represent each "grade" in the following 5-point descriptive visual grading scale:

Descriptive Visual Grading Scale

1—poor: 2 phases not discernable

2—ordinary: smeared non-distinct boundary, some fine striations

3—above average: 2 phases evident but some smearing and loss of contrast

4—very good: 2 phases evident, sharp contrast but slight smearing at phase boundary

5—excellent: 2 phases evident, sharp contrast with little or no smearing

10 panelists (mix of expert and naive) evaluated the set of five samples and assigned a forced choice integer grade. They were instructed to mentally integrate overall surface appearance, quality and distinctiveness of the set in assigning a single grade. For each set of 5 bars, the average value across panelists is taken.

Bar Manufacture

The continuous soap phase is produced in standard toilet soaps finishing line using processing techniques and equipment well known in the art.

The first step of this process involves the mixing of dried soap noodles from the storage silos with the minor ingredients in a batch mixer. The objective of this operation is to generate a good distribution of the minor ingredients throughout the bulk of the soap batch until uniform coating of the noodles has occurred.

After mixing, the soap mass is generally passed through a refiner followed by a roll mill to achieve micro-mixing and improve composition uniformity.

Finally the soap will be further refined and plodded, usually under vacuum in a two-stage operation with a single or twin worm configuration with an intermediate vacuum chamber, and extruded as a bar for cutting and stamping. Both the final refiner and plodder stages play a part in completing the total mixing process by providing additional micro-mixing.

The discontinuous phase can also be produced as noodles in a conventional toilet bar making equipment but with a different composition than the continuous phase adequate to meet the hardness requirements.

The discontinuous phase is typically stored, for example, in a buffer hopper, generally at 25° C. After suitable tempering, it is combined with (e.g., added onto) the continuous soap phase which is at a temperature between 33° and 50° C., preferably 33° and 42° C. typically, in the vacuum chamber, between the refining and extrusion stages, by means of dosing equipment which controls its rate of delivery. For this purpose, the vacuum chamber is modified to receive the discontinuous soap phase stream.

The composite mass, (i.e., combining of continuous and discontinuous phase masses) is then compacted and extruded into billets which are then cut and stamped into the desired shape.

If done under vacuum, this vacuum is typically applied during mixing and refining, until the combined masses are extruded through, for example, a nosecone. Typically the vacuum is at 500 to 600 mm pressure (measured as mercury or Hg pressure).

Except in the operating and comparative examples, or where otherwise explicitly indicated, all numbers in this description indicating amounts or ratios of materials or conditions or reaction, physical properties of materials and or use are to be understood as modified by the word "about".

Where used in the specification, the term "comprising" is intended to include the presence of stated features, integers, steps, components, but not to preclude the presence or addition of one or more features, integers, steps, components or groups thereof.

The following examples are intended to further illustrate the invention and are not intended to limit the invention in any way.

All percentage used, unless indicated otherwise, are intended to be percentages by weight.

EXAMPLES

EXAMPLE 1

This example illustrates the criticality of the hardness and plasticity of the continuous phase on bar appearance and manufacturability. The composition of the discontinuous phase used to prepare the bar examples 1A and 1B and comparative examples C1, C2 and C3 is shown in Table 1A. The hardness of this composition measured at 25° C. is 6.55 bars.

TABLE 1A

Composition of discontinuous phase

Ingredient	Wt %
Sodium soap, Anhydrous (85/15 Tallow/Coco)	70.45
Ethane hydroxy diphosphoric acid (EHDP)	0.02
Ethylenediaminetetra acetic acid (EDTA)	0.02
Coconut Fatty Acids	1.25
Triethanolamine	1.5
Propylene Glycol	1.5
Glycerol	9.0
Sodium Chloride	1.26
Perfume	1.5
Water	13.5

The compositions of the continuous phases for Examples 1A and 1B and comparative examples C1, C2 and C3 are given in Table 1B. Bars were prepared from at a 5 kg scale using a 100 mm plodder by the process described in the Bar Manufacture Section.

The key physical properties of the continuous and dispersed phases (hardness, plastic radius, and hardness ratio) and the characteristics of the resulting bars (visual appearance and estimated line speed) are collected in Table 1C. Of the five samples only examples 1A and 1B have the three parameters of hardness and plastic ratio of the continuous phase and hardness ratio in the range of the invention. These samples indeed combine an artisan appearance (two distinctive domains—no cracks and fissures) with the potential for high speed manufacture (a line speed of at least 200, preferably at least 300 BPM).

TABLE 1B

Compositions and physical properties of continuous phases for Example 1

Sample No.	C1	C2	C3	Example 1A	Example 1B
INGREDIENTS					
Sodium soap. Anhydrous (85/15 Tallow/Coco)	83.5	80.0	73.5	78.19	82.96
EDTA	0.02	0.02	0.02	0.02	0.02
EHDP	0.02	0.02	0.02	0.02	0.02
Titanium Dioxide	0.4	—	—	—	—
Fluorescer	0.024	—	—	—	—

TABLE 1B-continued

Compositions and physical properties of continuous phases for Example 1

Sample No.	C1	C2	C3	Example 1A	Example 1B
Coconut Fatty Acids	—	4.0	0.5	—	1.0
Glycerol	0.2	0.2	0.2	2.0	0.2
Sunflower seed oil	—	—	—	2.0	—
Silicone	—	—	—	2.0	—
Calcium Carbonate	—	—	10.0	—	—
Sodium Chloride	0.8	0.78	0.76	0.77	0.8
Perfume	1.5	1.5	1.5	1.5	1.5
Water	13.5	13.5	13.5	13.5	13.5

TABLE 1C

Physical characteristics, surface appearance, line speeds

Sample	C1	C2	C3	Example 1A	Example 1B
Hardness (bar) continuous phase @ 37.5 C	2.14	1.2	1.9	2.07	2.24
Plastic radius, r	1.9	3.8	1.1	2.6	2.8
Hardness Ratio, λ (Cylinder Impaction Tests)	3.1	5.4	3.4	3.2	2.9
Penetration value of continuous phase @ 33 C			17 mm	14 mm	
Hardness ratio by Penetration test			4.4	2.6	
Visual Grade[a]	2.2	3.3	2.4	4.8	3.1
Approximate line speed (bars per minute)	390	100	300	425	350

[a]Descriptive Visual Grading Scale
1 - poor: 2 phases not discernable
2 - ordinary: smeared non-distinct boundry, some fine striations
3 - above average: 2 phases evident but some smearing and loss of contrast
4 - very good: 2 phases evident, sharp contrast but slight smearing at phase boundary
5 - excellent: 2 phases evident, sharp contrast with little or no smearing

EXAMPLE 2

This example illustrates the criticalities of the hardness ratio, λ, as controlled by variations in the hardness of the discontinuous phase. Bar examples 2A–2C, and comparative examples C4 and C5 were prepared by the methods used in Example 1. The composition of the continuous phase used for all samples is shown in Table 2A.

TABLE 2A

Composition of the continuous phase for Bar Examples 2A–2C and comparative bar examples C4 and C5.

INGREDIENT	Wt %
Sodium soap, Anhydrous	77.77
EDTA	0.02
EHDP	0.02
Titanium Dioxide	0.4
Fluorescer	0.024
Perfume	1.5
Silicone	2
Glycerine	2
Sunflower Oil	2
Sodium Chloride	0.77

TABLE 2A-continued

Composition of the continuous phase for Bar Examples 2A–2C and comparative bar examples C4 and C5.

INGREDIENT	Wt %
Water	13.5
Hardness @ 37.5 C (bar)	2.07

The compositions of the discontinuous phases used in this example, the relevent hardness ratios and the visual appearance of the bars formed from these phases is shown in Table 2B.

The multiphase bar examples 2A and 2B have hardness ratios, λ, greater than 2.5 and have a distinctive artisan crafted appearance and excellent quality in terms of surface appearance. In contrast comparative samples C4, C5, and C6 whose hardness ratios are less than 2.0 have poorer definition between the phases and have a more ordinary appearance.

TABLE 2B

Compositions and physical properties of discontinuous phases and visual appearance of bars made by combing these phases with the continuous phase of Table 2A.

Sample No. INGREDIENTS	Example 2A	Example 2B	C4 Wt %	C5	C6
Sodium soap, Anhydrous (85/15 Tallow/Coco)	70.38	74.46	75.7	77.96	80.0
EDTA	0.02	0.02	0.02	0.02	0.02
EHDP	0.02	0.02	0.02	0.02	0.02
Titanium Dioxide	—	—	0.4	—	—
Fluorescer	—	—	0.024	—	—
Coconut Fatty Acids	1.25	0.5	—	2.0	5.0
Glycerol	9.02	6.0	2.0	—	—
Sunflower seed oil	—	—	4.0	—	—
Silicone	—	—	2.0	—	—
Thriethanolamine	1.5	—	—	—	—
Propilene Glycol	1.5	—	—	—	—
PEG	—	—	—	5.0	—
Sodium Chloride	1.26		0.77		—
Perfume	1.55	1.50	1.50	1.50	1.50
Water	13.5	17.5	13.5	13.5	13.5
Hardness at 25° C.	6.55	5.86	4.13	3.44	3.44
Hardness ratio (λ)	3.1	2.8	1.9	1.7	1.7
Visual Grade[a]	4.8	3.1	2.4	2.0	1.6

a) Descriptive Visual Grading Scale

1—poor: 2 phases not discernable

2—ordinary: smeared non-distinct boundry, some fine striations

3—above average: 2 phases evident but some smearing and loss of contrast

4—very good: 2 phases evident, sharp contrast but slight smearing at phase boundary

5—excellent: 2 phases evident, sharp contrast with little or no smearing

EXAMPLE 3

This example illustrates several optical texture and pattern modifiers. The continuous phase is the same as used in Example 2. The discontinuous phases and appearance modifiers used in Samples 3A–3D are given in Table 3A. Bars were prepared by the methods set forth in Example 1.

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCION DE NUEVAS CREACIONES

2020
Bogotá, D.C.

Abogado
JUAN PABLO CADENA SARMIENTO

ASUNTO	Radicación	2007-001972
	Trámite	011
	Evento	378
	Actuación	519
	Oficio	
	Folios	011 16452

Patente de Invención	☒	Patente de Modelo de Utilidad	☐	
Vía Nacional	☐			
Vía PCT (fase nacional)	☒	Cap.I	☐	Cap. II ☒

No. Sol. Internacional PCT/US2005/020327
Fecha de Presentación Internal. 09/06/2005

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica:

1. Documentos estudiados

1.1.	Descripción:	Folios: 24 a 49	como se radicó inicialmente
1.2.	Reivindicaciones:	Folios: 50-52	como se radicó inicialmente
1.3.	Prioridad:	09/06/2004;US; 60/580,305.	

2. Objeto de la invención

Titulo de la invención: BARRA DE JABON PARA MASAJE

Problema Técnico Planteado: Necesidad de una barra de jabón que proporciones masaje y beneficios exfoliantes

Solución: Barra de jabón de acuerdo a la reivindicación 8 (folio 51 y 54-)

IPC: C11D13/14, 13/18, 9/26.

3. De la solicitud de Patente

3.1. Reivindicaciones *(artículo 30 D 486)*

La reivindicación 1, no es concisa, como tampoco sus dependientes 2-8, ya que la barra de jabón reclamada no está caracterizada por los componentes que la constituyen, sino por un resultado a alcanzar. Se sugiere caracterizarla como se hizo para la reivindicación 8.

La reivindicación 8, menciona términos como "alrededor", y la expresión "uno o más ácidos grasos", "por lo menos", "un agente endurecedor", "un surfactante sintético no jabonoso", los cuales son concisos por lo tanto se sugiere eliminarlos y especificar el componente que caracteriza la composción.

4. Determinación del Estado de la Técnica

La fecha que se ha tenido en cuenta para determinar el Estado de la Técnica es:

Fecha de presentación de la solicitud prioritaria 09/06/2004.

Teniendo en cuenta la fecha indicada se realizó la búsqueda en el estado de la técnica de documentos relacionados con la solicitud encontrándose los siguientes documentos más relevantes:

Nº	Documento	Título	Fecha de publicación*
D1	US6723690	Process for making extruded multiphase bars exhibiting artisan-crafted appearance	Abril 20 de 2004

D1 (folios: 85-91), divulga una barra de jabón multifase que comprende una fase continua de jabón; otro surfactante, como ácidos ; un agente endurecedor como el cloruro de sodio, además de agua y una fase discontinua que comprende un surfactante y un mejorador de solubilidad.

5. Análisis de patentabilidad (artículo 14 D486)

5.1 Novedad (artículo 16 D486)

La reivindicación 1, reclama una barra de jabón que comprende:
por lo menos dos partes diferentes.

D1, divulga una barra de jabón (folio 85, abstract) que comprende una fase continua (folio 86, columna 4, línea 31) y una fase discontinua (folio 88, columna 11, líneas 54-56).

Las características esenciales de la reivindicación 1, habían sido divulgadas previamente en D1, es decir:

una barra de jabón que comprende: por lo menos dos partes diferentes (fase continua y una fase discontinua)

Por lo cual la reivindicación no es nueva.

Las reivindicaciones dependientes 2-7 no mencionan alguna característica que haga nueva a la composición de la reivindicación 1, por lo cual se considera que no son nuevas.

5.2 Nivel inventivo *(artículo18 D486)*

La reivindicación 8, reclama una barra de jabón caracterizada porque comprende dos partes la parte A y la parte B, en donde la parte A es una parte menos soluble y comprende:

a) Alrededor de 75%-90% por peso de un jabón;
b) Alrededor de 1-5% por peso de uno o más ácidos grasos de cadena recta o ramificada C_{12}-C_{20}
c) Alrededor de 0.5-1,2% por peso de un agente endurecedor
d) Agua y

La parte B es una más soluble que la parte A en agua y comprende:

a1) 60-75% por peso de un jabón
b1) un componente mejorador de solubilidad seleccionado del grupo que consiste de:
(i) 6-10% por peso de un humectante
(ii) 3-10% por peso de un alcohol
(iii) 0.5-10% por peso de un humectante de tipo sacárido
(iv) 0.5-25% por peso de un surfactante sintético no jabonoso; y
(v) Mezclas de los mismos;

siempre que los mejoradores de solubilidad deban estar presentes en una cantidad mínima de por lo menos de alrededor de 5% por peso;

(c1) alrededor de 0.5-1.7% por peso de un agente endurecedor;
(d1) alrededor de 0.1-5% por peso de uno o más de un ácido graso de cadena recta o ramificada C_{12}-C_{20}; y
(e1) agua.

El documento del estado de la técnica, más cercano, es D1, porque divulga una barra de jabón multifase (folio 85, abstract) que comprende:
una fase continua (equivale a la parte A menos soluble en la solicitud) que comprende: jabón 82.96% (folio 90, columna 18, tabla1B), ácido graso 1% (folio 91, columna 19, tabla 1B), un agente endurecedor como el cloruro de sodio 0.8% (folio 91, columna 19, taba1B), agua (folio 91, columna 19, tabla 1B) y;

una fase discontinua (equivale a la parte B más soluble en la solicitud) que comprende: jabón 70.45% (folio 90 columna 18, tabla 1A), un mejorador de solubilidad seleccionado del grupo que consiste de un humectante como glicerol, 9.0% .

La diferencia de la barra de jabón reclamada con la de D1 (ejemplo 1, folios 90-91), es que esta puede contener otros componentes, mejoradores de solubilidad tales como: alcohol, un sacárido, o un surfactante sintético no jabonoso.

El efecto que logra la diferencia es una barra de jabón con forma texturizada (porque se pueden sentir algunos lomos, folio 49, pg 26).

Siendo entonces el problema técnico objetivo, como modificar la barra de D1 para obtener una barra de jabón, alternativa, con forma texturizada.

Pero en D1 ya se divulgaba, una manera de solucionar el problema técnico, mediante el uso de los mejoradores de solubilidad como un alcohol como el sorbitol (folio 89, columna 13, línea 47 y folio 90, tabla 1A) ; un humectante de tipo sacárido como sucrosa (folio89, columna 13, línea 21), un surfactante sintético no jabonoso como isetiosanatos de acilo de 0.5-15% (folio 87, columna 6, líneas 43-44, 51).

En consecuencia, se considera que para un experto en la materia la barra de jabón con forma texturizada, es obvia, según lo divulgado en la tabla 1B de D1 (folio 90, ejemplos 1A y 1B), porque al contener el ejemplo 1A, menos porcentaje de jabón 4.77% y 10 veces más cantidad de glicerol (2.0 % que es el mejorador de solubilidad) que el ejemplo 1B) esta parte presenta menos dureza, por lo tanto mayor solubilidad, respecto a la barra del ejemplo 1B (tabla 1C). Por lo tanto la materia reclamada en la presente reivindicación no es inventiva.

6. Conclusión:

Los requisitos de patentabilidad de la presente solicitud se encuentran afectados así:

N°	Documento N°	Reivindicaciones afectadas	Requisito que afecta
D1	US6723690	1 - 8	Novedad

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.

JOSE LUIS SALAZAR LOPEZ
Director de Nuevas Creaciones (E)

El anterior requerimiento fue notificado por fijación en lista, de fecha 23 DIC. 2010

CONCEPTO TÉCNICO No. 4130	**EXAMINADOR TÉCNICO** Código No.202078