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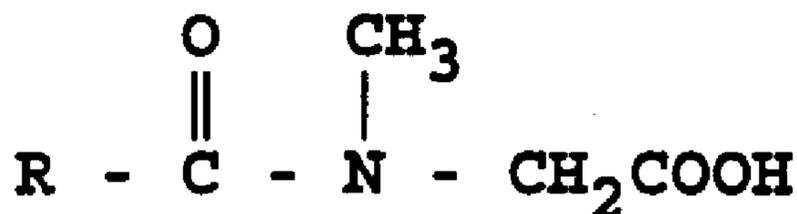
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(54) **COMPOSITION DE GEL A RASER AUTO-MOUSSANTE ET
SANS SAVON**

(54) **SOAP-FREE SELF-FOAMING SHAVE GEL COMPOSITION**



(57) La présente invention comprend une composition de gel à raser auto-moussante et sans savon, qui présente de très bonnes qualités d'efficacité, tout en évitant que la peau ne soit sèche ou ne brûle, comme c'est le cas avec les préparations de rasage à base de savon. La composition de gel à raser de la présente invention contient de l'eau, un sel sarcosinate hydrosoluble, un agent auto-moussant volatile et un fluide hydrocarboné paraffinique non volatile.

(57) The present invention comprises a soap-free self-foaming shave gel composition which maintains superior performance attributes while avoiding the harshness and drying associated with soap-based shave preparations. The shave gel composition of the present invention comprises water, a water-soluble sarcosinate salt, a volatile self-foaming agent, and a non-volatile paraffinic hydrocarbon fluid.



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<p>(21) International Application Number: PCT/US95/11955</p> <p>(22) International Filing Date: 20 September 1995 (20.09.95)</p> <p>(30) Priority Data: 310,597 22 September 1994 (22.09.94) US</p> <p>(60) Parent Application or Grant (63) Related by Continuation US 310,597 (CON) Filed on 22 September 1994 (22.09.94)</p> <p>(71) Applicant (for all designated States except US): THE GILLETTE COMPANY [US/US]; Prudential Tower Building, Boston, MA 02199 (US).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): GEORGE, Robert, C. [US/US]; Apartment 1, 131 Eliot Avenue, Newton, MA 02165 (US). LASOTA, Andrew, M. [GB/GB]; 20 Colebrooke Avenue, London W13 0J7 (GB).</p> <p>(74) Agents: HANDELMAN, Joseph, H.; Ladas & Parry, 26 West 61st Street, New York, NY 10023 (US) et al.</p>		<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>
<p>(54) Title: SOAP-FREE SELF-FOAMING SHAVE GEL COMPOSITION</p>		
<p>(57) Abstract</p> <p>The present invention comprises a soap-free self-foaming shave gel composition which maintains superior performance attributes while avoiding the harshness and drying associated with soap-based shave preparations. The shave gel composition of the present invention comprises water, a water-soluble sarcosinate salt, a volatile self-foaming agent, and a non-volatile paraffinic hydrocarbon fluid.</p>		

SOAP-FREE SELF-FOAMING SHAVE GEL COMPOSITION

This invention relates to a non-soap shave gel composition. Such a composition is dispensed in the form of a gel containing a
5 volatile component that causes the gel to turn into a foam when spread on the skin in preparation for wet shaving - that is, shaving with a razor blade.

Post-foaming or self-foaming shave
10 gels are now well-known and have been described, for example, in U.S. Pat. Nos. 2,995,521 (Bluard), 3,541,581 (Monson), 4,405,489 (Sisbarro), 4,528,111 (Su), 4,651,503 (Anderson), 5,248,495 (Patterson), 5,308,643
15 (Osipow), and 5,326,556 (Barnet) and published PCT application WO 91/07943 (Chaudhuri). Such compositions generally take the form of an oil-in-water emulsion in which the self-foaming agent, generally a volatile (i.e. low boiling
20 point) aliphatic hydrocarbon, is solubilized in the oil phase, and the water phase comprises a water-soluble soap component. The product is generally packaged in an aerosol container with a barrier, such as a piston or collapsible bag,
25 to separate the self-foaming gel from the propellant required for expulsion of the product. The product is dispensed as a clear,

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translucent or opaque gel that is substantially free from foaming until it is spread over the skin, at which time it produces a foam lather generated by the volatilization of the volatile hydrocarbon foaming agent.

While the conventional self-foaming shave gels have gained wide acceptance by consumers, they can be somewhat harsh and drying to the skin due to the soap component. To counteract this effect, the typical shave gel composition is formulated with skin soothing components such as humectants, emollients, silicones, etc. While the addition of such components substantially improve the aesthetics of the product, repeated use can still produce undesirable drying of the skin, particularly among female users. Accordingly, it is highly desirable to develop a self-foaming shave gel composition that is less harsh and drying to the skin than conventional shave gels, without sacrificing any of the performance characteristics thereof.

N-acyl sarcosinates are well-known anionic surfactants represented by the formula



where R is a fatty acid hydrocarbon chain.

These materials are typically used in the form of water-soluble salts formed by neutralization with sodium, potassium or ammonium hydroxide or triethanolamine and have been suggested for use in a wide variety of products including shampoos, detergents, dentifrices, hand soaps, and shave creams. For example, aerosol shaving creams containing sarcosinates are disclosed in U.S. Pat. Nos. 3,959,160 (Horsler), 4,113,643

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Thompson), and 4,140,648 (Thompson) and in
Harry's Cosmeticology (7th ed., 1982), p. 169
(see Croda Cosmetic and Pharmaceutical Formulary
Supplement, formula SV11). A soap-free non-
5 aerosol shave cream which may optionally contain
a sarcosinate is disclosed in U.S. Pat.
4,892,729 (Cavazza) and a non-aerosol shave gel
which contains both a soap and a sarcosinate is
disclosed in U.S. Pat. 5,340,571 (Grace).

10 Soap-free shaving products are also
known, but have met with limited acceptance.
For example, U.S. Pat. Nos. 4,046,874 (Gabby)
and 4,761,279 (Khalil) disclose shaving cream
compositions containing respectively a
15 polyglycerol fatty ester (e.g. triglycerol
monostearate) and a fatty ester of lactic acid
(e.g. sodium salt of stearylactic acid). A
pre-shave gel containing polyethylene oxide
polymer and polysulfonic acid polymer is
20 disclosed in U.S. Pat. 4,999,183 (Mackles).

The present invention comprises a
soap-free self-foaming shave gel composition
which maintains superior performance attributes
while avoiding the harshness and drying
25 associated with soap-based shave preparations.
The shave gel composition of the present
invention comprises water, a water-soluble N-
acyl sarcosinate salt, a volatile self-foaming
agent, and a non-volatile paraffinic hydrocarbon
30 fluid.

The essential components of the
shaving composition of the present invention
include, in percent by weight, about 65 to 85%
water, about 4 to 16% N-acyl sarcosine wherein
35 the acyl group has 10 to 20 carbon atoms,
sufficient base to solubilize the N-acyl
sarcosine and provide a pH of about 4 to about

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8, about 1 to 8% self-foaming agent, and about 1
to 10% non-volatile paraffinic hydrocarbon
fluid, said composition being in the form of a
self-foaming gel and being substantially free of
5 soap. Preferably the composition will comprise
about 70 to 80% water, about 6 to 12% N-acyl
sarcosine, sufficient base to provide a pH of
about 5 to 7, about 2 to 5% self-foaming agent,
and about 1.5 to 7% non-volatile paraffinic
10 hydrocarbon fluid. A more preferred shaving
composition will also additionally include a
non-ionic surfactant, a fatty alcohol and a
gelling aid, and will be substantially free of
other anionic surfactants.

15 The N-acyl sarcosine may be selected
from any of those which are commercially
available that have an acyl moiety with 10 to
20, preferably 12 to 18, carbon atoms and that
will provide a water-soluble sarcosinate when
20 neutralized with an appropriate base. These
typically include stearoyl sarcosine, myristoyl
sarcosine, oleoyl sarcosine, lauroyl sarcosine,
cocoyle sarcosine and mixtures thereof. Stearoyl
sarcosine and myristoyl sarcosine, as well as
25 mixtures thereof, are preferred. It is also
possible to utilize a pre-neutralized
sarcosinate, such as triethanolamine myristoyl
sarcosinate, in which case it will not be
necessary to separately add base to the
30 composition except for such amount of acid or
base as required to adjust the pH of the final
composition. Both the sarcosine component and
the base component should be selected so as to
provide a clear or translucent gel when combined
35 with the other components of the composition.

The base may be selected from any of
the organic amine bases which are typically

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utilized to neutralize N-acyl sarcosines to form water-soluble salts. These include, for example, isopropanolamine, mono-, di- and triethanolamine, aminomethyl propanol and aminomethyl propanediol. Triethanolamine is preferred. The amount of base which is utilized will depend on the amount of sarcosine which is present in the composition. A sufficient amount should be utilized to solubilize the sarcosine in the aqueous phase of the composition and provide a pH of about 4 to 8, preferably about 5 to 7. To arrive at this pH range the sarcosine must be about 50 to 90% neutralized, preferably about 60 to 80% neutralized. It is, thus, most preferred that there is at least a slight molar excess of sarcosine to base. Typically, the base will comprise about 1 to 6% of the composition.

The self-foaming agent may be any volatile hydrocarbon or halogenated hydrocarbon with a sufficiently low boiling point that it will volatilize and foam the gel upon application to the skin, but not so low that it causes the gel to foam prematurely. The typical boiling point of such an agent generally falls within the range of 20 to 40°C. Preferred self-foaming agents are selected from saturated aliphatic hydrocarbons having 4 to 6 carbon atoms, such as n-pentane, isopentane, neopentane, n-butane, isobutane, and mixtures thereof. Most preferred is a mixture of isopentane and isobutane in a weight ratio of about 1:1 to about 3:1. The self-foaming agent will normally be present in an amount comprising about 1 to 8% of the composition, preferably about 2 to 5%.

The shaving composition additionally

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contains about 1 to 10%, preferably about 1.5 to 7%, of a non-volatile paraffinic hydrocarbon fluid which aids in gelling the composition. The terms "non-volatile" and "fluid" mean that these materials are liquid at room temperature and have a boiling point above 200°C. Such hydrocarbon fluids include mineral oils and branched-chain aliphatic liquids. These fluids typically have from about 16 to about 48, preferably about 20 to about 40, carbon atoms and a viscosity of about 5 to about 100 cs., preferably about 10 to about 50 cs., at 40°C. The preferred non-volatile paraffinic hydrocarbon fluid is selected from mineral oil with a viscosity of about 10 to about 50 cs. at 40°C., hydrogenated polyisobutene with a molecular weight of about 320 to about 420, and mixtures thereof.

Water is the major component of the composition and is used in sufficient quantities to solubilize the surfactant component and form the continuous phase of the emulsion, while providing a stable gel of suitable viscosity with desirable lathering and rinsing properties. It is added in a sufficient amount (q.s.) to bring the total of all components to 100%. The quantity of water in the composition typically falls within the range of about 65 to 85%, preferably about 70 to 80%.

In addition to the above-described essential components, the shaving composition of the present invention may include a variety of other well-known cosmetic ingredients to improve the aesthetics and performance characteristics of the composition.

It is generally desirable to include up to 8%, preferably about 1 to 6%, of a non-

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ionic surfactant in the composition to improve
foam quality, wettability, gel consistency, and
rinsability. Suitable non-ionic surfactants
will typically have an HLB of 15 or more and
5 must be compatible with the aqueous sarcosinate
component. Preferred non-ionic surfactants
include the polyoxyethylene ethers of fatty
alcohols, acids and amides, particularly those
having 10 to 20, preferably 12 to 18, carbon
10 atoms in the fatty moiety and about 8 to 60,
preferably 10 to 30, ethylene oxide units.
These include, for example, Oleth-20, Steareth-
21, Ceteth-20, and Laureth-23. Other non-ionic
surfactants include the polyoxyethylene ethers
15 of alkyl substituted phenols, such as Nonoxynol-
4 and Nonoxynol-20, fatty alkanolamides such as
Lauramide DEA and Cocamide MEA, polyethoxylated
sorbitan esters of fatty acids, such as
Polysorbate-20, lauryl polyglucoside, sucrose
20 laurate, and polyglycerol 8-oleate.

It may also be desirable to include a
water-soluble gelling aid or thickening agent in
the shaving composition to improve the
consistency and stability of the gel, as well as
25 to adjust its viscosity. These may include, for
example, hydroxyalkyl cellulose polymers such as
hydroxyethyl cellulose and hydroxypropyl
cellulose (sold under the trademarks "Natrosol"
and "Klucel" respectively), copolymers of
30 acrylic acid and polyallyl sucrose (sold under
the trademark "Carbopol"), carboxymethyl
cellulose, and cellulose methyl ether (sold
under the trademark "Methocel"). Natural or
synthetic gums, resins, and starches may also be
35 used. The preferred thickening agents are
hydroxyethyl cellulose, hydroxypropyl cellulose,
and mixtures thereof. The gelling aid or

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thickening agent is typically included in an amount of about 0.01 to 5%, preferably about 0.1 to 2%, by weight of the composition.

The shaving composition will also preferably include up to 8%, preferably about 2 to 6%, by weight of a fatty alcohol such as myristyl, lauryl and stearyl alcohol and octyl dodecanol. The term "fatty" is intended to include 10 to 20, preferably 12 to 18, carbon atoms.

It is particularly desirable to include in the composition a cationic conditioning polymer which is substantive to the skin in order to improve lubricity and post-shave skin feel. Such polymers may include polymeric quaternary ammonium salts of hydroxyethyl cellulose such as polyquaternium-10 and polyquaternium-24. These polymers are typically included in an amount of about 0.05 to 2%, preferably about 0.1 to 1%, by weight.

Other useful additives which may be utilized in the composition include humectants such as glycerin, sorbitol, and propylene glycol, emollients including fatty esters such as isopropyl myristate, decyl oleate, 2-ethylhexyl palmitate, PEG-7 glyceryl cocoate, and glyceryl linoleate, propoxylated fatty ethers such as PPG-10 cetyl ether and PPG-11 stearyl ether, di- and triglycerides such as lecithin and caprylic/capric triglyceride, vegetable oils, and similar materials, skin freshening and soothing agents such as menthol, aloe, allantoin, lanolin, collagen and hyaluronic acid, lubricants such as polyethylene oxide, fluorosurfactants, and silicones (e.g. dimethicone, dimethiconol, dimethicone copolyol, stearyl dimethicone, cetyl dimethicone copolyol,

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phenyl dimethicone, cyclomethicone, etc.),
vitamins (including vitamin precursors and
derivatives) such as panthenol, tocopherol
acetate, and vitamin A palmitate, colorants,
5 fragrances, antioxidants and preservatives.

A preferred shaving composition of the
present invention comprises, in percent by
weight, about 65 to 85% water, about 4 to 16% N-
acyl sarcosine wherein the acyl group has 10 to
10 20, preferably 12 to 18, carbon atoms,
sufficient organic amine base to solubilize the
N-acyl sarcosine and provide a pH of about 4 to
about 8, about 1 to 8% self-foaming agent, about
1 to 10% non-volatile paraffinic hydrocarbon
15 fluid, about 1 to 8% of a non-ionic surfactant,
and about 1 to 8% of a fatty alcohol. Most
preferably the composition will comprise about
70 to 80% water, about 6 to 12% N-acyl
sarcosine, sufficient base to provide a pH of
20 about 5 to 7, about 2 to 5% self-foaming agent,
about 1.5 to 7% non-volatile paraffinic
hydrocarbon fluid, about 1 to 6% of a non-ionic
surfactant, about 2 to 6% of a fatty alcohol,
and about 0.1 to 2% of a thickening agent.

25 The shaving composition of the present
invention may be packaged in any dispenser
suitable for dispensing post-foaming shave gels.
These include aerosol containers with a barrier,
such as a collapsible bag or piston, to separate
30 the gel from the propellant required for
expulsion, collapsible tubes, and pump or
squeeze containers.

The following examples illustrate
representative shave gel compositions of the
35 present invention. All parts and percentages
are by weight.

Component	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5
Stearoyl sarcosine	5.192		3.558		7.500
Myristol sarcosine	1.923	8.000	3.558	7.500	
Triethanolamine (99%)	2.596	2.750	2.596	2.750	2.750
Myristyl alcohol	2.692	4.000	2.692	4.000	3.000
Mineral oil 180/190 ¹	1.923				
Mineral oil 65/75 ¹		5.000	1.442	4.500	3.000
Hydrog. Polyisobutene ²			1.442		
Dimethicone/dimethiconol ³	0.192		0.288		
Stearyl Dimethicone ⁴					0.250
Oleth-20	4.327	1.000	4.327	1.000	4.500
Isopentane	2.887	1.900	1.925	2.887	2.887
Isobutane	0.963	1.900	1.925	0.963	0.963
Hydroxyethyl cellulose ⁵	0.240	0.250	0.240	0.400	0.400
Hydroxypropyl cellulose ⁶	0.019		0.019	0.020	0.020
Polyquaternium-10 ⁷	0.240		0.144	0.200	0.250
PEG-14M ⁸	0.144		0.144	0.250	0.200
PEG-115M ⁹		0.025			

Component	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5
Aloe vera gel	0.962		0.962		1.000
Frag., color., preserv.	q.s.	q.s.	q.s.	q.s.	q.s.
Water	74.854	74.424	73.892	74.484	72.724

- 1 Protol 180/190 and Carnation 65/75 from Witco Corp.
- 2 Panalane L-14E from Amoco Chemical
- 3 DC 2-1420 from Dow Corning
- 4 DC 2503 from Dow Corning
- 5 Natrosol 250 HHR from Hercules Inc.
- 6 Klucel HFF from Aqualon
- 7 Polymer LK from Amerchol
- 8 Polyox WSR N-3000 (MW about 300,000) from Union Carbide
- 9 Polyox Coagulant (MW about 5 million) from Union Carbide

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Procedure: Dissolve into the water at room temperature with stirring the hydroxyethyl cellulose, polyquaternium-10, and PEG-14M (or 115M). After about 40 minutes of stirring, heat
5 the aqueous solution to about 85°C., add the sarcosine (which has been pre-melted), myristyl alcohol, mineral oil and/or hydrogenated polyisobutene and mix for about 10 minutes. Add the triethanolamine and Oleth-20 and continue
10 mixing at about 85°C. for about 30 minutes. Cool to 70°C., add the preservative and mix for 10 minutes. Cool to 35°C. and add the silicone, fragrance, colorant, aloe gel and hydroxypropyl cellulose, the latter having been first premixed
15 with about 0.5 parts of water at 55°C., then an additional 3.5 parts of water at room temperature. After cooling to room temperature the mixture is blended with the isopentane/isobutane and packaged in a barrier-
20 type aerosol container.

While the invention has been described in detail with particular reference to preferred embodiments thereof, various modifications and substitutions will be apparent to those skilled
25 in the art and should be considered to fall within the spirit and scope of the invention as defined by the following claims.

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C L A I M S

1. A shaving composition in the form of a self-foaming gel comprising, in percent by weight, about 65 to 85% water, about 4 to 16% N-
5 acyl sarcosine wherein the acyl group has 10 to 20 carbon atoms, sufficient organic amine base to solubilize the N-acyl sarcosine and provide a pH of about 4 to about 8, about 1 to 8% self-foaming agent, and about 1 to 10% non-volatile
10 paraffinic hydrocarbon fluid, said composition being substantially free of soap.
2. The shaving composition of claim 1, wherein the N-acyl sarcosine is selected from the group consisting of stearyl sarcosine,
15 myristoyl sarcosine, oleoyl sarcosine, lauroyl sarcosine, cocoyl sarcosine and mixtures thereof.
3. The shaving composition of claim 2, wherein the organic amine base is triethanolamine.
4. The shaving composition of claim 3,
20 wherein the non-volatile paraffinic hydrocarbon fluid has about 20 to about 40 carbon atoms and a viscosity of about 10 to about 50 cs. at 40°C.
5. The shaving composition of claim 4, wherein the self-foaming agent is a volatile
25 hydrocarbon having 4 to 6 carbon atoms or a mixture of such hydrocarbons.
6. The shaving composition of claim 5, additionally comprising about 1 to 8% of a non-ionic surfactant.
- 30 7. The shaving composition of claim 6, additionally comprising about 1 to 8% of a fatty alcohol.
8. The shaving composition of claim 7, wherein the non-volatile paraffinic hydrocarbon
35 fluid is selected from the group consisting of mineral oil, hydrogenated polyisobutene, and mixtures thereof.

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9. The shaving composition of claim 8, which comprises about 70 to 80% water, about 6 to 12% N-acyl sarcosine, sufficient organic amine base to provide a pH of about 5 to 7, about 2 to 5% self-foaming agent, and about 1.5 to 7% non-volatile paraffinic hydrocarbon fluid, said composition being substantially free of other anionic surfactants.
10. The shaving composition of claim 9, additionally comprising about 0.05 to 2% of a cationic conditioning polymer.
11. The shaving composition of claim 10, additionally comprising about 0.01 to 5% of a thickening agent.
12. The shaving composition of claim 11, wherein the cationic conditioning polymer is a polymeric quaternary ammonium salt of hydroxyethyl cellulose.
13. The shaving composition of claim 12, wherein the thickening agent is selected from the group consisting of hydroxyethyl cellulose, hydroxypropyl cellulose, and mixtures thereof.
14. A shaving composition in the form of a self-foaming gel comprising, in percent by weight, about 65 to 85% water, about 4 to 16% N-acyl sarcosine wherein the acyl group has 12 to 18 carbon atoms, sufficient organic amine base to solubilize the N-acyl sarcosine and provide a pH of about 4 to about 8, about 1 to 8% self-foaming agent, about 1 to 10% non-volatile paraffinic hydrocarbon fluid, about 1 to 8% of a non-ionic surfactant, and about 1 to 8% of a fatty alcohol, said composition being substantially free of soap.
15. The shaving composition of claim 14, which comprises about 70 to 80% water, about 6 to 12% N-acyl sarcosine, sufficient base to

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provide a pH of about 5 to 7, about 2 to 5% self-foaming agent, about 1.5 to 7% non-volatile paraffinic hydrocarbon fluid, about 1 to 6% of a non-ionic surfactant, and about 2 to 6% of a fatty alcohol, said composition being substantially free of other anionic surfactants.

16. The shaving composition of claim 15, wherein the N-acyl sarcosine is selected from the group consisting of stearyl sarcosine, myristoyl sarcosine, oleoyl sarcosine, lauroyl sarcosine, cocoyl sarcosine and mixtures thereof, the organic amine base is triethanolamine, the non-volatile paraffinic hydrocarbon fluid has about 20 to about 40 carbon atoms and a viscosity of about 10 to about 50 cs. at 40°C., and the self-foaming agent is a volatile hydrocarbon having 4 to 6 carbon atoms or a mixture of such hydrocarbons.

17. The shaving composition of claim 16, wherein the non-volatile paraffinic hydrocarbon fluid is selected from the group consisting of mineral oil, hydrogenated polyisobutene, and mixtures thereof, and the self-foaming agent is a mixture of isopentane and isobutane in a weight ratio of about 1:1 to about 3:1.

18. The shaving composition of claim 17, additionally comprising about 0.05 to 2% of a cationic conditioning polymer.

19. The shaving composition of claim 18, additionally comprising about 0.1 to 2% of a thickening agent selected from the group consisting of hydroxyethyl cellulose, hydroxypropyl cellulose, and mixtures thereof.

20. The shaving composition of claim 19, wherein the cationic conditioning polymer is a polymeric quaternary ammonium salt of hydroxyethyl cellulose.

