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COSMETIC SOAP BAR

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7 Claims

ABSTRACT OF THE DISCLOSURE

Cosmetic soap compositions based upon regular soap stock which contain free fat or fatty acids, low molecular weight alkylene glycols, or polyalkylene glycols are disclosed. The alkylene glycol component overcomes the lather depressing characteristics of the free fat or fatty acids. The polyalkylene glycol component imparts a smooth feeling to the skin. Other materials such as germicides, perfumes and dyes can be added to the basic components in the preparation of soap bars.

This invention relates to cosmetic soap compositions such as cosmetic soap bars. Superfating agents such as free fatty acids or free natural animal or vegetable fats have long been added to toilet soaps in order to provide emolliency, or lubrication of the skin. Superfating, which is adding more fat or fatty acid than required to neutralize the alkali employed in the soap production, serves to impart a better action to the soap upon the skin and to combat conditions which tend to rob the dermal surfaces of their natural fatty coating. Even when present in very small quantities, such agents are known to depress the foaming and lathering properties of soap compositions although foam depression does not occur in synthetic detergent bar compositions to the same degree. For this reason, such agents are generally added to detergent compositions based on synthetic detergents rather than to a composition based on regular soap stock.

It is an object and advantage of the present invention to provide cosmetic soap compositions based principally upon regular soap. It is another object to provide such a soap which will produce a copious, richly textured lather in use. A further object is to provide such a soap having a desirable skin feel during use. Still another object is to provide such a soap which will leave a pleasant feel on the skin after use.

One preferred embodiment of a cosmetic soap bar of the invention, that not only cleans the skin but leaves it feeling smooth and slightly lubricated, is based upon a regular soap stock composed of tallow/coco soaps and containing about 1–10% and preferably 1–5% by weight of a polyalkylene glycol having a molecular weight from about 700 to 2000, to provide emollient characteristics to the soap. The soap bar may also be superfatted and may contain a lower molecular weight glycol as more fully described hereinafter.

Another preferred embodiment of a cosmetic soap bar of this invention, that also cleans the skin and leaves it feeling smooth and slightly lubricated, is also based upon a regular soap stock composed of tallow/coco soaps and contains from about 1–5% by weight of cocoa butter, and about 1–10% by weight of a lower molecular weight alkylene glycol so as to enhance the lather properties of the soap composition. Cocoa butter is a preferred superfating agent.

A further preferred embodiment of a cosmetic soap bar of the invention, that not only cleans the skin but also leaves it feeling smooth and lightly lubricated, contains at least about 60% by weight of a regular soap stock and about 1–3% by weight of cocoa butter, about 1–10% by

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weight of a lower molecular weight glycol to thereby enhance the lathering properties of the soap composition and about 1–10% by weight of a polyalkylene glycol having a molecular weight from about 700 to 2000 to thereby enhance the emollient characteristics of the soap composition. These ingredients, useful ranges thereof and equivalents thereof are more fully set forth below.

The soap ingredient may be any of the water-soluble ammonium, metallic, or organic base salts of various fatty acids having chiefly from 12 to 18 carbon atoms, such as lauric, oleic, stearic, and palmitic acids. Various blends of natural animal or vegetable oils, fish or whale oils or rosin in saponified forms may be used, as is well known in the art. The sodium and potassium soaps are preferred; with blends of sodium coco soap and sodium tallow soaps being especially desirable such as a blend of sodium tallow/sodium coco soaps in the proportions of generally 90–10/60–40. Particularly preferred proportions of these two soaps are 85/15 and 75/25. The latter ratio is desirable in that the increased proportion of coconut oil soap contributes to the development of a rapid copious lather.

The cosmetic soap bar of the invention may have soap as its entire deterative ingredient. In the alternative, suitable cosmetic soap bars contain at least 60% by weight of soap. The soap may be complemented by up to about 40% of a synthetic detergent. Any water-soluble synthetic detergent, such as the well known anionic and nonionic synthetic detergents, may be used. Suitable synthetic detergents include, but are not restricted to anionics such as alkyl aryl sulfonates, alcohol or fatty acid sulfonates or ether sulfates, alkyl amide or ester sulfonates, and fatty acid glycerol ester sulfates or ether sulfonates; and nonionics such as ethoxylated alcohols and alkylphenols and alkanolamides like the fatty mono- or diethanolamides. In the foregoing the alkyl radicals generally contain 6 to 22 carbon atoms and may be derived from natural or synthetic sources such as from fatty acids.

Glycols having a molecular weight from about 62 to 146 are suitable. Alkylene glycols wherein the alkylene radical contains from 2 to 8 carbon atoms are suitable. In the presence of a superfatty agent such as a free fat or fatty acid, the following glycols are desirable: ethylene glycol, propylene glycol, butylene glycol, pentylene glycol and hexylene glycol. Propylene glycol or hexylene glycol are preferred. Esters, ethers, acetals and similar reaction product derivatives of the glycols may be used but are not preferred. Diethylene or triethylene glycols may be used but are not preferred. These ethylene, diethylene and triethylene glycols are not materials of choice because of their toxicity.

From about 1–10 weight percent of the alkylene glycol is suitable to overcome the lather depressant characteristics of the superfatted cosmetic soap. It is preferred to use about 1–5% by weight. About 2% by weight of an alkylene glycol such as hexylene glycol is especially preferred, although somewhat more or less may be employed but without further substantial advantages.

Suitable polyalkylene glycols are those having a molecular weight from about 700 through about 6000. Those having a molecular weight of about 700 through about 2000 are preferred. Both polyethylene glycols and methoxy polyethylene glycols are suitable, such as those available from Union Carbide and Carbon Corp. under the trademark Carbowax. Polypropylenes of such molecular weights may be used. It is preferred to use polyethylene glycols having average molecular weights from about 700 through 2000; and polyethylene glycols having an average molecular weight of about 1000 such as Carbowax 1000, as well as Carbowax 750, a methoxy polyethylene glycol having an average molecular weight of 750, are especially preferred. When incorporated into soap these polyalkylene

glycols result in a soap composition which in use on the human skin leaves the skin feeling smooth and lightly lubricated. This cosmetic feel is noticed not only during use but also after usage of the soap composition, i.e. a pleasant lubricated feel will linger on the skin after usage of the soap composition. The polyalkylene glycols are compatible with the above-described lower molecular weight glycols and may be combined in the production of preferred cosmetic soap bars. Further, the polyalkylene glycols are also compatible with the hereinafter described superfatting agents. An especially preferred cosmetic soap bar results from the combination, in regular soap, of polyethylene glycols, the above-described alkylene glycols, and cocoa butter. Such a soap composition will, in use, produce a copious, richly textured lather and will have a desirable emollient effect upon the skin.

The polyethylene glycols may be incorporated into the cosmetic soap compositions of the present invention in an amount from about 1 through 10 weight percent; about 1-5% by weight is desired, with about 2% being particularly preferred. Substantially more or less of the polyethylene glycol may be incorporated into the soap composition, but without substantial further advantage.

The superfatting agent may be any natural animal or vegetable fat, or any natural or synthetic fatty acid. In general, free fats and free fatty acids having from 12 to 18 carbon atoms may be incorporated into the cosmetic soap compositions of the invention in amounts ranging from about 1 through 5% by weight. Less than 1% by weight may be used but without substantial further advantage. It is not recommended that more than 5% be incorporated, as depressing the lather characteristics of the soap composition despite the addition of the other ingredients. Although other fats or fatty acids are suitable, it is preferred to incorporate cocoa butter into the compositions of this invention. Cocoa butter is the natural vegetable fat from crushed cocoa beans which generally contains glycerides of stearic, palmitic and lauric acids. Synthetic cocoa butters may be used, such as those available from Drew Chemical Corp. under the trademark Wecobee. Although the incorporation of cocoa butter in soap depresses drastically its lathering characteristics, such effects are not shown in the composition of this invention. The above-described cosmetic soap bars containing about 1% cocoa butter and about 2% each of the hereinabove described alkylene glycols and polyalkylene glycols exhibit excellent lathering and emolliency properties.

EXAMPLES

Reference will now be made to specific examples of particular compositions of the present invention, illustrating their combined lathering and emolliency properties.

The additives, as set forth hereinafter in Table I, were incorporated into a regular soap base stock and formed into soap bars. The soap bars were submitted to a panel of experts for evaluating attributes of the soap. The panel of experts (15 participants) evaluated the intensities of the attributes, according to the following numerical scale:

- 1=absent
- 2=slight
- 3=good improvement
- 4=strong improvement
- 5=very strong improvement

From evaluations of identical bars it was determined that replication and measurable statistical differences could be determined. It should be noted that an overall composite average of 3 or 3+ is a very good degree of improvement because of the make-up of the panel.

The attributes measured were: quantity of lather, speed of lathering, texture of skin feel in use, and skin feel after use. Results are set forth in Table I.

TABLE I

Additive	Lather quantity	Speed of lather	Texture	Skin feel
1% cocoa butter-----	2-	2-	2+	2+
2% cocoa butter-----	1+	1+	3	2+
3% cocoa butter-----	1	1	3	3
5% cocoa butter-----	1	1	3+	3+
2% Wecobee S ¹ -----	2-	2-	2+	2+
5% Wecobee S-----	1+	1+	3	2+
2% Wecobee M ² -----	2-	2-	2+	2+
5% Wecobee M-----	1+	1+	3-	2+
2% Carbowax 1000 ³ -----	2+	2+	2+	2+
2% Carbowax 1500 ³ -----	2+	2+	2+	2+
1% cocoa butter and 2% hexylene glycol-----	3-	3-	2+	2+
2% cocoa butter and 2% hexylene glycol-----	3	3	3-	2+
3% cocoa butter and 2% hexylene glycol-----	1+	2-	3+	3
1% cocoa butter 2% hexylene glycol and 1% Carbowax 1000...	3	3	3	3-
1% cocoa butter, 2% hexylene glycol and 2% Carbowax 1000...	3+	3	3	3+
1% cocoa butter, 2% propylene glycol and 2% Carbowax 1000...	3	3	3	3
1% cocoa butter, 1.2% hexylene glycol, 1.2% Carbowax 100 and 5% alpha olefin sulfonate-----	3	3	3	3+
Control (no additives)-----	2	2	2	2
Superfatted synthetic detergent bar ⁴ -----	3+	3+	3+	3+

¹ Trademark for synthetic cocoa butter having melting point of about 32.8° C. available from Drew Chemical Corp.

² Trademark for synthetic cocoa butter having melting point of about 33.8° C. available from Drew Chemical Corp.

³ Trademarks for polyethylene glycols having average molecular weight corresponding to the numbers 1000 and 1500 available from Union Carbide Corp.

⁴ Sulfonamide anionic detergent with about 30% free stearic-palmitic acids.

The results set forth hereinabove were obtained with milled toilet soap bars which utilized blends of sodium soaps of coconut and tallow fatty acids in proportions of 15-25/85-75 respectively and such results are obtained with soaps generally. For example, any fatty acid soap will produce these results, such as sodium laurate, potassium stearate, sodium oleate and potassium myristates. Anionic or nonionic detergents may be added to the soaps. At the same time an all soap system is highly effective in achieving the objects of this invention.

Additional ingredients may be added to the compositions of this invention such as perfumes, dyes and the like additives which are common to bar soap compositions. Alpha olefin sulfonates and like additives may be employed to provide lime soap dispersancy. Such sulfonates, in amounts up to 20% by weight, provide good lime soap dispersancy but generally affect the lathering properties. Such an affect is not apparent in the compositions of this invention as shown by the lather speed and quantity results hereinabove. Further, the compositions may contain from 0.1-5% and preferably 0.2-1% by weight of a germicide. The germicide may be any of the known quaternary, phenyl ether, or halogenated bisphenolic germicides known to the art such as those shown in U.S. Pats. 2,535,077 for halogenated bisphenols; 3,177,115 for synergistic combinations containing halogenated bisphenols; and 2-hydroxy-2,4,4'-trichlorophenyl ether. Trichlorocarbanilides and polybrominated salicylanilides may also be used.

An especially preferred germicide consists of about 0.5-2% of about equal proportions of hexachlorophene and trichlorocarbanilide.

Although it is desirable to have varying amounts of the above additives incorporated into the compositions to produce special effects, compositions having both excellent emolliency and lathering properties may be made without such additional ingredients.

The ingredients of the compositions may be combined with soap at any stage of the manufacture of soap bars wherein the temperature of the soap mass is not too high by any suitable method preferably which results in a uniform distribution of ingredients throughout the whole soap mass. It is preferred to add the superfatting agents at cooler temperature stages such as to the soap pellets. It is preferred to add the alkylene and polyalkylene glycols

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per se or in suitable solvent solutions at either the amalgamator or the neat soap stage.

This invention has been described above in conjunction with various illustrative examples of cosmetic soap bars. It will be obvious to those skilled in the art, however, that additional variations and modifications may be made without departing from the spirit or scope of the present invention.

What is claimed is:

1. A cosmetic soap bar consisting essentially of:
 - (A) from about 1 to 5 percent by weight of a lather depressing superfatting agent selected from the group consisting of animal fats, vegetable fats, free fatty acids containing 12-18 carbon atoms and mixtures thereof;
 - (B) from about 1 to 10 percent by weight of an alkylene glycol containing 2 to 8 carbon atoms as a lather improver;
 - (C) and at least 60% by weight of a water-soluble soap selected from the group consisting of sodium and potassium salts of fatty acids containing 12 to 18 carbon atoms.
2. The composition of claim 1 wherein said superfatting agent is coco butter.
3. The composition of claim 1 wherein said alkylene glycol is hexylene glycol.

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4. The composition of claim 1 wherein said alkylene glycol is propylene glycol.

5. The soap bar of claim 1 which additionally contains about 1-10% by weight of a polyalkylene glycol selected from the group consisting of polyethylene glycols and polypropylene glycols having a molecular weight of from about 700-6000.

6. The composition of claim 5 wherein said polyalkylene glycol is a polyethylene glycol having a molecular weight of about 700-2000.

7. The composition of claim 5 wherein said polyalkylene glycol is methoxypolyethylene glycol.

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