SELF-FOAMING COMPOSITIONS AND METHODS

CLAIM OF PRIORITY

This application claims priority to provisional U.S. Patent Application No. 62/148,393, filed April 16, 2015; to provisional U.S. Patent Application No. 62/186,643, filed June 30, 2015; and to U.S. Patent Application No. 14/790,900, filed July 2, 2015; each of which is incorporated by reference in its entirety.

TECHNICAL FIELD

This disclosure relates to self-foaming compositions and methods of making and using them.

BACKGROUND

Compositions for treating acne frequently take the form of a spot treatment, such as a cream or lotion that is applied only at the location of a blemish. Applying the treatment to the entire face can help prevent the formation of blemishes in areas that are clear. Currently available spot treatments may be too harsh to the skin to be suitable for use on the entire face. There is a need for acne treatments suitable for broader use than a spot treatment.

SUMMARY

In one embodiment, a self-foaming composition includes at least one perfluoro compound; at least one surfactant; and at least one fatty component selected from a fatty alcohol and/or a fatty acid; where the composition, when released from a sealed vessel, forms a foam. In one aspect, there is provided a self-foaming composition comprising: at least one perfluoro compound selected from ethyl perfluorobutyl ether, ethyl perfluoroisobutyl ether, and mixtures thereof; at least one surfactant; and at least one fatty component selected from a fatty alcohol and/or a fatty acid; wherein the composition, when released from a sealed vessel, forms a foam.

In another embodiment, a method of making a self-foaming composition includes forming a composition by combining at least one perfluoro compound; at least one surfactant; and at least one fatty component selected from a fatty alcohol and/or a fatty acid; and enclosing the composition in a sealed vessel; where the composition, when released from the sealed vessel, forms a foam. In another aspect, there is provided a method of making a self-foaming composition, comprising: forming a composition by combining at least one perfluoro compound selected from ethyl perfluorobutyl ether, ethyl perfluoroisobutyl ether, and mixtures thereof; at least one surfactant; and at least one fatty component selected from a fatty alcohol and/or a fatty acid; and enclosing the composition in a sealed vessel; wherein the composition, when released from the sealed vessel, forms a foam.

The composition can include from about 0.1% w/w to about 25% w/w of surfactant(s). The surfactant(s) can be selected from glycereth-18 ethylhexanoate, glycereth-18, sodium C14-16 olefin sulfonate, sodium cocoamphoacetate, cocamidopropyl

WHAT IS CLAIMED IS:

1. A self-foaming composition comprising:
at least one perfluoro compound selected from ethyl perfluorobutyl ether, ethyl perfluoroisobutyl ether, and mixtures thereof;
at least one surfactant; and
at least one fatty component selected from a fatty alcohol and/or a fatty acid;
wherein the composition, when released from a sealed vessel, forms a foam.

2. The composition of claim 1, comprising from about 0.1% w/w to about 25% w/w of surfactant(s).

3. The composition of claim 2, wherein the surfactant(s) are selected from glycereth-18 ethylhexanoate, glycereth-18, sodium C14-16 olefin sulfonate, sodium cocoamphoacetate, cocamidopropyl hydroxysultaine, coco glucoside, and mixtures thereof.

4. The composition of claim 2, comprising from about 0.1% w/w to about 10% w/w of the fatty component.

5. The composition of claim 4, wherein the fatty component is selected from cetyl alcohol, oleyl alcohol, stearyl alcohol, arachidyl alcohol, batyl alcohol, behenyl alcohol, lauric acid, myristic acid, palmitic acid, stearic acid, arachidic acid, behenic acid, myristoleic acid, palmitoleic acid, oleic acid, linoleic acid, linolenic acid, arachadonic acid, and combinations thereof.

6. The composition of claim 5, comprising at least two fatty components.

7. The composition of claim 1, further comprising a skin care active agent.

8. The composition of claim 7, wherein the skin care active agent is selected from sulfur, colloidal sulfur, benzoyl peroxide, and salicylic acid, or a combination thereof.

9. The composition of claim 1, wherein the composition further comprises:

from about 40 to about 60 %w/w of water;

at least one of: from about 0 to about 2.5 %w/w of glycereth-18 ethylhexanoate, from about 0 to about 2.5 %w/w of glycereth-18, from about 5 to about 15 %w/w of sodium C14-16 olefin sulfonate, from about 1 to about 5 %w/w of sodium cocoamphoacetate, from about 0.1 to about 1.5 %w/w of cocamidopropyl hydroxysultaine, and from about 2 to about 8 %w/w of coco glucoside; and

at least one of: from about 0.1 to about 2.5 %w/w of behenyl alcohol, and from about 0.1 to about 5 %w/w of stearyl alcohol.

10. The composition of claim 1, wherein the composition comprises Water (Aqua), Xanthan Gum, Acrylates Copolymer, Glycereth-18 Ethylhexanoate, Glycereth-18, Sodium C14-16 Olefin Sulfonate, Sodium Cocoamphoacetate, Cocamidopropyl Hydroxysultaine, Propanediol, Phenoxyethanol, Ethylhexylglycerin, Coco Glucoside, Behenyl Alcohol, Stearyl Alcohol, and colloidal sulfur.

11. The composition of claim 1 in a sealed bag-on-valve container.

12. A method of making a self-foaming composition, comprising:

forming a composition by combining at least one perfluoro compound selected from ethyl perfluorobutyl ether, ethyl perfluoroisobutyl ether, and mixtures thereof;

at least one surfactant; and

at least one fatty component selected from a fatty alcohol and/or a fatty acid; and

enclosing the composition in a sealed vessel;

wherein the composition, when released from the sealed vessel, forms a foam.

13. The method of claim 12, wherein the composition comprises from about 0.1% w/w to about 25% w/w of surfactant(s).

14. The method of claim 12, wherein the surfactant(s) are selected from glycereth-12 18 ethylhexanoate, glycereth-18, sodium C14-16 olefin sulfonate, sodium cocoamphoacetate, cocamidopropyl hydroxysultaine, coco glucoside, and mixtures thereof.

15. The method of claim 12, wherein the composition comprises from about 0.1% w/w to about 10% w/w of the fatty component.

16. The method of claim 15, wherein the fatty component is selected from cetyl alcohol, oleyl alcohol, stearyl alcohol, arachidyl alcohol, batyl alcohol, and behenyl alcohol, lauric acid, myristic acid, palmitic acid, stearic acid, arachidic acid, behenic acid, myristoleic acid, palmitoleic acid, oleic acid, linoleic acid, linolenic acid, arachadonic acid, and combinations thereof.

17. The method of claim 16, comprising at least two fatty components.

18. The method of claim 12, wherein the composition further comprises a skin care active agent.

19. The method of claim 18, wherein the skin care active agent is selected from sulfur, colloidal sulfur, benzoyl peroxide, and salicylic acid, or a combination thereof.

20. The method of claim 12, wherein the composition comprises: from about 40 to about 60 %w/w of water; at least one of: from about 0 to about 2.5 %w/w of glycereth-18 ethylhexanoate, from about 0 to about 2.5 %w/w of glycereth-18, from about 5 to about 15 %w/w of sodium C14-16 olefin sulfonate, from about 1 to about 5 %w/w of sodium cocoamphoacetate, from about 0.1 to about 1.5 %w/w of cocamidopropyl hydroxysultaine, and from about 2 to about 8 %w/w of coco glucoside; and at least one of: from about 0.1 to about 2.5 %w/w of behenyl alcohol, and from about 0.1 to about 5 %w/w of stearyl alcohol.

21. The method of claim 12, wherein the composition comprises Water (Aqua), Xanthan Gum, Acrylates Copolymer, Glycereth-18 Ethylhexanoate, Glycereth-18, Sodium C14-16 Olefin Sulfonate, Sodium Cocoamphoacetate, Cocamidopropyl Hydroxysultaine, Propanediol, Phenoxyethanol, Ethylhexylglycerin, Coco Glucoside, Behenyl Alcohol, Stearyl Alcohol, and colloidal sulfur.

22. The composition of claim 1, further comprises methyl perfluorobutyl ether, methyl perfluoroisobutyl ether, perfluoropropane, perfluorobutane, perfluoropentane, perfluorohexane, perfluorodecalin, perfluorodimethyl-cyclohexane, perfluoroperhydrophenanthrene, pentafluoro-propane, perfluorotripropylamine, C6-C9 perfluoroalkanes, perfluoroperhydrofluoranthrene, perfluorodecalin, perfluoroperhydro-phenanthrene, bis(perfluor-hexyl)-1,2-ethene, perfluoro-1,3-dimethylcyclohexane, perfluoro-methyldecalin, perfluoroisopropyldecalin, a mixture of perfluorodixylylmethane and perfluorodixylylethane, and/or a mixture of perfluoroperhydrophenanthrene and perfluoro n-butyl decalin.

23. The method of claim 12, further comprises methyl perfluorobutyl ether, methyl perfluoroisobutyl ether, perfluoropropane, perfluorobutane, perfluoropentane, perfluorohexane, perfluorodecalin, perfluorodimethyl-cyclohexane, perfluoroperhydrophenanthrene, pentafluoro-propane, perfluorotripropylamine, C6-C9 perfluoroalkanes, perfluoroperhydrofluoranthrene, perfluorodecalin, perfluoroperhydro-phenanthrene, bis(perfluor-hexyl)-1,2-ethene, perfluoro-1,3-dimethylcyclohexane, perfluoro-methyldecalin, perfluoroisopropyldecalin, a mixture of perfluorodixylylmethane and perfluorodixylylethane, and/or a mixture of perfluoroperhydrophenanthrene and perfluoro n-butyl decalin.

24. The composition of claim 1, further comprises coconut alcohol.

25. The method of claim 12, further comprises coconut alcohol.