

Description

Chemical Composition of specialty surfactant for manufacture of gel waterless hand cleaner, other gel products without the use of heat.

Background

This invention relates to the composition of specialty surfactant that gels, cleans, and emulsifies when it is mixed with hydrocarbon solvents or d-limonene or paraffin solvent or mineral spirit and water. A specialty surfactant, developed for the production of gelled waterless hand cleaner, cream, paste and lotion products without the application of heat.

High manufacturing cost of gel waterless hand cleaner and other gel products has always been a major concern for most manufacturers. The heating and cooling processes of making gelled waterless hand cleaner and other gelled are extensively time consuming, giving rise to high product cost.

The above problems have been aggravated by the astronomical escalation cost of transportation and shipping over the last two years due to fast rising cost of fuel. The cost of gel waterless hand cleaners and other gel products have seen significantly marked increase recently due to higher electrical bills, warehousing charges and cost of shipment.

The overcome the above said problems, the patentee has invented a specialty surfactant that significantly reduces the need of high inventory of raw materials and the elimination of heating process for gel waterless hand cleaner and other gel products, resulting in higher productivity and lower production cost of gelled products.

With the invention of said specialty surfactant, manufacturers of gelled or creamed products or gelled waterless hand cleaner no longer require any heating equipment or to stock up a wide inventory of raw materials. Hence, saving electrical bills, and warehousing charges, resulting in marketing a more competitive gelled waterless hand cleaner or other gelled products.

SUMMARY OF THE INVENTION

The foregoing invention relates to a specialty surfactant that gels up water and hydrocarbon solvents or di-limonene or paraffin solvent or mineral spirit when they are mixed together.

Gel waterless hand cleaner and other gel products are produced by using a small portion of said surfactant and a major portion of hydrocarbon solvents or d-limonene or paraffin or mineral spirit and water.



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DETAILED DESCRIPTION OF THE INVENTION

In accordance with this invention, it is an object of the invention to provide the composition and examples of claims of said invention.

By way of example and not limitation, the following are illustrative of various embodiments of the foregoing invention.

The Examples and Composition are herein described.

It is an object of the invention to provide the composition and examples of manufacturing foregoing invention and using the said surfactant to produce gelled waterless hand cleaner by using a small portion of the said specialty surfactant and hydrocarbon solvent and water as main portion of the composition.

The examples involve the preparation of the specialty surfactant and the second part involves the process of making gel waterless hand cleaner by mixing water, hydrocarbon solvents or di-limonene or paraffin solvent or mineral spirit with said surfactant resulting in the gelling effect of the mixture.

Example 1

This example illustrates the composition and the percentage of raw materials used in manufacturing foregoing specialty surfactant:

Step 1: It involves the mixing of Ethoxylated surfactants of 9 to 10 moles with Ethoxylated Emulsifier of 4 to 6 moles in a 200 liters capacity mixing vessel with propeller-like mixer for agitation. The said mixture is blended for about 10 minutes before fatty acid (Oleic Acid) is added into the mixing vessel.

Step 2: It involves the mixing of fatty acid (Oleic Acid) with the above mixture for about 10 minutes till the Oleic Acid is completely dispersed into said mixture.

Step 3: It involves the addition of Triethanolamine into the above mixture and is mixed for about 5 minutes to 7 minutes and the product is deemed complete.

Example 2

This example illustrates the composition and process of manufacturing an opaque gel waterless hand cleaner using a small portion of the foregoing specialty surfactant and a major portion of hydrocarbon and water.

In a typical process, 12 % weight of specialty surfactant, 50% weight of hydrocarbon solvents and 38% weight of water are mixed in a blending vessel.

Step 1: Add 12 % by weight of the said specialty surfactant into a blending vessel with a propeller-like mixer attached. Switch on the power and allow the mixer to rotate.

Step 2: Add 50% by weight of hydrocarbon solvent either odourless kerosene or diesel into the blending vessel and allow up to 10 minutes of mixing before adding water

Step 3: Add 38% by weight of water into said mixture and the viscosity of the mixture will immediately thicken or gel.

Step 4: Stir said mixture for 5 to 10 minutes and a consistent gel-like hand cleaner is produced.

Example 3

This example illustrates the composition and process of manufacturing a clear gel waterless hand cleaner using a small portion of the foregoing specialty surfactant , Coconut Diethanolamine and a major portion of hydrocarbon Solvent and water.

In a typical process, 8.2 % weight of specialty surfactant, 40% weight of odorless kerosene or D-Limonene, 13% wt of coconut diethanolamine and 38.8% weight of water are mixed in a blending vessel.

Step 1: Add 8.2 % by weight of the said specialty surfactant into a blending vessel with a propeller-like mixer attached. Switch on the power and allow the mixer to rotate.

Step 2: Add 40% by weight of odourless kerosene or d-limonene solvent into the blending vessel and allow up to 10 minutes of mixing before adding water

Step 3: Add 13% by weight of coconut diethanolamine into said mixture and mix for 10 minutes.

Step4. Add 38.8 % by weight of water into said mixture and stir for 10 minutes the viscosity of the mixture will immediately thicken or gel.

Step 5: Stir said mixture for 5 to 10 minutes and a consistent clear gel-like waterless hand cleaner is produced.

Example 4

This example illustrates the composition and process of manufacturing of an opaque gel leather cleaner using a small portion of the foregoing specialty surfactant, silicon emulsion and a major portion of odourless kerosene or d-limonene and water

In a typical process, 12.5 % weight of specialty surfactant, 47.5% by weight of odorless kerosene or D-Limonene, 10% by weight of silicon emulsion and 30% weight of water are mixed in a blending vessel.

Step 1: Add 12.5 % by weight of the said specialty surfactant into a blending vessel with a propeller-like mixer attached. Switch on the power and allow the mixer to rotate.

Step 2: Add 47.5% by weight of odourless kerosene or d-limonene into the blending vessel and allow up to 10 minutes of mixing.

Step 3: Add 10% of silicon emulsion into said mixture and allow up to 5 minutes mixing.

Step 4: Add 30% by weight of water into said mixture and the viscosity of the mixture will immediately thicken or gel.

Step 5: Stir said mixture for 5 to 10 minutes and an opaque gel-like leather cleaner is produced.

Example 5

This example illustrates the composition and process of manufacturing of an analgesic opaque gel using a small portion of the foregoing specialty surfactant, with Oleum Citronellae, Oleum Cajuputi, Oleum Terebinthinne, Piperis Folium, Zingiberis Rhizoma, Cucumae Rhizoma, Oleum Cocos, Paraffin Solvent and a major portion of water.

In a typical process, 21 % by weight of specialty surfactant, with 1.2 % by wt of Oleum Citronellae, 1.2 % by wt of Oleum Cajuputi, 1.2% by wt of Oleum Terebinthinne, 0.72 % by wt of Piperis Folium, 0.72% by wt of Zingiberis Rhizoma, 0.48% by wt of Cucumae Rhizoma, 18.48 % by wt of Oleum Cocos, and 11% by wt of Paraffin Solvent and 44% by wt of water are mixed in a blending vessel.

Step 1: Add 21 % by weight of the said specialty surfactant into a blending vessel with a propeller-like mixer attached. Switch on the power and allow the mixer to rotate.

Step 2: Add 1.2 % by wt of Oleum Citronellae, 1.2 % by wt of Oleum Cajuputi, 1.2% by wt of Oleum Terebinthinne, 0.72 % by wt of Piperis Folium, 0.72% by wt of Zingiberis Rhizoma, 0.48% by wt of Cucumae Rhizoma, 18.48 % by wt of Oleum Cocos, and 11% by wt of Paraffin Solvent are mixed in a blending vessel allow up to 20 minutes of mixing.

Step 3: Add 44% by weight of water into said mixture and the viscosity of the mixture will immediately thicken or gel.

Step 4: Stir said mixture for 20 minutes and an opaque analgesic gel is produced.

From the foregoing, it will be seen that this invention is one well adapted to attain all the ends and objects hereinabove set forth together with other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and sub-combinations. This is contemplated by and is within the scope of the claims.

Since many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth is to be interpreted as illustrative and not in a limiting sense.

Claims:

What is claimed is:

- 1) Chemical Composition of specialty surfactant for manufacture of gel waterless hand cleaner or other gel products through coupling of hydrocarbon solvents or D-limonene solvent or mineral spirits or paraffin solvents and water with said specialty surfactant without the use of heat.
- 2) Chemical Composition specialty surfactant as in claim 1 wherein the composition comprising of non-ionic surfactants, fatty acid, and tertiary amine.
- 4) Chemical Composition of specialty surfactant eliminates the need for wide inventory of raw materials for making water waterless hand cleaner, gelled or creamed products.
- 3) Chemical Composition of specialty surfactant as in claim 2 wherein the non-ionic surfactants comprising of a hydrophilic and a hydrophobic surfactant.
- 4) Chemical Composition of specialty surfactant as in claim 2 wherein the non-ionic surfactants are either nonylphenol ethoxylate or alcohol ethoxylate.
- 5) Chemical Composition of specialty surfactant as in claim 2 wherein the hydrophilic surfactant is nonylphenol ethoxylate 9 moles with (Hydrophile-Lipophile Balance Value)HLB Value of 12.9 or secondary alcohol ethoxylate 9 moles with (Hydrophile-Lipophile Balance Value) HLB Value of 13.3.
- 6) Chemical Composition of specialty surfactant as in claim 2 wherein the hydrophobic surfactant is nonylphenol ethoxylate 6 moles with (Hydrophile-Lipophile Balance Value) HLB Value of 10.9 or alcohol ethoxylate 5 moles with ((Hydrophile-Lipophile Balance Value) HLB Value 10.5.
- 7) Chemical Composition of specialty surfactant as in claim 2 wherein the fatty acid is a monounsaturated omega-9 fatty acid found in various vegetable and animal sources.
- 8) Chemical Composition of specialty surfactant as in claim 7 wherein fatty acid is oleic acid.
- 9) Chemical Composition of specialty surfactant as in claim 8 wherein the molecular formula of the oleic acid is $C_{18}H_{34}O_2$
- 10) Chemical Composition of specialty surfactant as in claim 7 wherein the International Union of Pure and Applied Chemistry name (IUPAC) of oleic acid is (9Z)-Octadec-9-enoic acid, (9Z)-Octadecenoic acid or (Z)- Octadec-9-enoic acid.
- 11) Chemical Composition of specialty surfactant as in claim 2 wherein the tertiary amine is 2,2',2''- Nitrilotriethanol or Triethanolamine chemical Formula: $C_6H_{15}NO_3$.
- 12) Chemical Composition of specialty surfactant of claim 2, wherein the composition comprising:

- a) 10 – 20 wt % of Oleic Acid.
- b) 10 – 20 wt % of Triethanolamine.
- c) 20 – 35 wt % of Nonylphenol Ethoxylate 6 moles.
- d) 20 – 35 wt % of Nonylphenol Ethoxylate 9 moles.

13) A composition of specialty surfactant as of claim 2, wherein the composition comprising:

- a) 17.25 wt % of Oleic Acid.
- b) 17.25 wt % Triethanolamine.
- c) 31 wt % of Nonylphenol Ehtoxylate 6 moles
- d) 34.5 wt % of Nonylphenol Ehtoxylate 9 moles.

14) A composition of specialty surfactant as of claim 13, wherein the waterless hand cleaner can be produced by mixing 12 % weight of said specialty surfactant, 50% weight of hydrocarbon solvents and 38% weight of water in a blending vessel.

15) A composition of specialty surfactant as of claim 14, wherein the waterless hand cleaner can be formulated by mixing 12 % weight of said specialty surfactant, 50% weight of hydrocarbon solvents and 38% weight of water in a blending vessel without the use of heat.

16) A composition of specialty surfactant as of claim 15, wherein the hydrocarbon solvents is either Kerosene or odorless kerosene or diesel.

17) A composition of specialty surfactant as of claim 16 wherein the hydrocarbon solvent used is odorless kerosene.

18) A composition of specialty surfactant as of claim 14 wherein an opaque gel waterless hand cleaner will be produced with said formulated ingredients.

19) A composition of specialty surfactant as of claim 13, wherein the waterless hand cleaner can be produced by mixing 12 % weight of said specialty surfactant, 50% weight of D-Limonene solvent and 38% weight of water in a blending vessel.

20) A composition of specialty surfactant as of claim 19, wherein the molecular structure of the D- Limonene solvent is $C_{10}H_{16}$.

21) A composition of specialty surfactant as of claim 13, wherein the waterless hand cleaner can be produced by mixing 12 % weight of said specialty surfactant, 50% weight of mineral spirit and 38% weight of water in a blending vessel.

- 22) A composition of specialty surfactant as of claim 21 wherein the mineral spirit is solvent white spirit.
- 23) A composition of specialty surfactant as of claim 13 wherein a clear waterless hand cleaner gel can be produced by said specialty surfactant with hydrocarbon solvents or D-Limonene solvents or mineral spirit with water and Coconut diethanolamine.
- 24) A composition of specialty surfactant as of claim 23 wherein a clear waterless hand cleaner gel can be produced by mixing 5-15% wt of said specialty surfactant with 30-40% wt hydrocarbon solvents or D-Limonene solvents or mineral spirit with 30-45% water and 10-15% wt of Coconut diethanolamine.
- 25) A composition of specialty surfactant as of claim 24 wherein a clear waterless hand cleaner gel can be produced by mixing 8.2 % wt of specialty surfactant with 40% wt hydrocarbon solvents or D-Limonene solvents or mineral spirit with 38.8% water and 13% wt of Coconut diethanolamine.
- 26) A composition of specialty surfactant of claim 13 wherein an opaque gel leather cleaner can be produced by mixing said surfactant with odorless kerosene or D-limonene, water and silicone emulsion with fragrance and dye as optional raw materials.
- 27) A composition of specialty surfactant of claim 13 wherein an opaque gel leather cleaner can be produced by mixing 10-15% wt of said surfactant, 30-50% wt of odorless kerosene or D-limonene, 25-35% wt of water and 8-15% wt of silicone emulsion with 0.5 % wt of fragrance as optional raw material.
- 28) A composition of specialty surfactant of claim 27 wherein an opaque gel leather cleaner can be produced by mixing 12.5% wt of said surfactant, 47.5% wt of odorless kerosene or D-limonene, 30 % wt of water and 10% wt of silicone emulsion.
- 29) A composition of specialty surfactant of claim 13 wherein an analgesic opaque gel can be produced by mixing said surfactant with Oleum Citronellae, Oleum Cajuputi, Oleum Terebinthinne, Piperis Folium, Zingiberis Rhizoma, Cucumae Rhizoma, Oleum Cocos, Paraffin Solvent and water.
- 30) A composition of specialty surfactant of claim 13 wherein an analgesic opaque gel can be produced by mixing said 15-25% wt of said surfactant with 1-5% wt of Oleum Citronellae, 1-5% wt of Oleum Cajuputi, 1-5% wt of Oleum Terebinthinne, 0.5-1% wt of Piperis Folium, 0.5-1% wt of Zingiberis Rhizoma, 0.2-1% wt of Cucumae Rhizoma, 10-20 % wt of Oleum Cocos, 5-10% wt of Paraffin Solvent and 38-48% wt of water.
- 31) A composition of specialty surfactant of claim 30 wherein an analgesic opaque gel can be produced by mixing said 21% wt of said surfactant with 1.2% wt of Oleum Citronellae, 1.2% wt of Oleum Cajuputi, 1.2% wt of Oleum Terebinthinne, 0.72 wt of Piperis Folium, 0.72% wt of Zingiberis Rhizoma, 0.48% wt of Cucumae Rhizoma, 18.48% wt of Oleum Cocos, 11% wt of Paraffin Solvent and 44% wt of water.