Attorney Docket No. 21302WO01

LIQUID CLEANING COMPOSITIONS CONTAINING SULFONATED ESTOLIDES AND ALKYL ESTER SULFONATES

RELATED APPLICATIONS

[01] This patent application makes reference to, claims priority to and claims benefit from United States Provisional Patent Application Serial No. 61/241,710 filed on September 11, 2009.

BACKGROUND OF THE INVENTION

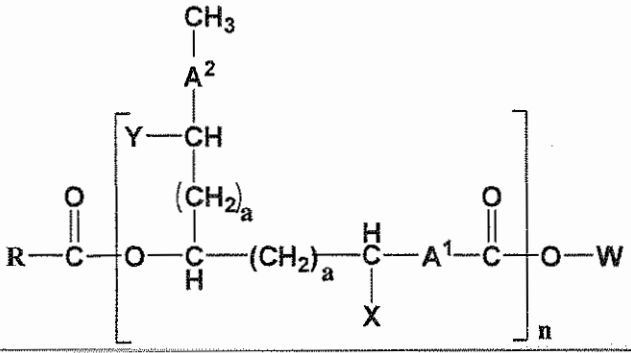
[02] The present technology relates to compositions comprising sulfo-estolides, particularly salts of sulfo-estolides, and alkyl ester sulfonates. Such compositions, in general, are disclosed in U.S. application Serial No. 12/507,011, which is herein incorporated by reference in its entirety. According to application Serial No. 12/507,011, potassium is a preferred salt of sulfo-estolides for use in heavy duty liquid laundry concentrates because the potassium salt is significantly lower in viscosity than a comparable composition that contains the same amount of a sodium salt. Although such potassium salts of sulfo-estolides have desirable viscosity properties, they have an unexpected drawback in that they tend to form precipitates when used in compositions that also comprise alkyl ester sulfonates. Precipitates are undesirable for liquid cleaning compositions. In some cases the precipitates will settle to the bottom of the container holding the liquid cleaning composition. In other cases, the precipitate will be suspended throughout the composition. In either case, such precipitates are unacceptable whereas a liquid cleaning composition that is substantially free of settled precipitates is desired.

BRIEF SUMMARY OF THE INVENTION

[02a] In one aspect, there is provided a liquid cleaning composition, comprising:

at least one compound having the following Formula 1:

Formula 1



wherein n is an integer from 1-30;

one of X and Y is SO_3-Z, the other of X and Y is H, and X and Y are independently assigned in each repeating unit;

A^1 and A^2 are linear or branched, saturated or unsaturated, substituted or un-substituted, alkyl diradicals wherein the total number of carbons for each repeating unit is independent and in the range of C_8 to C_{22};

a is 0, 1, or 2, and is independently assigned in each repeating unit;

R is linear or branched, saturated or unsaturated, substituted or un-substituted, wherein the total number of carbon atoms is from about 1 to about 24;

W is a cation selected from the group consisting of sodium, lithium, ammonium, and mixturesthereof;

Z is a cation selected from the group consisting of sodium, lithium, ammonium, and mixtures thereof;

at least one alkyl ester sulfonate surfactant;

wherein the liquid composition is substantially free of settled precipitation, and has a percent transmittance of greater than about 50 at 570 nanometers measured in the absence of dyes and opacifiers, at 25 degrees Celsius.

[03] Disclosed herein~~Accordingly, one aspect of the present technology~~ is a liquid cleaning composition that comprises sulfo-estolide salts and alkyl ester sulfonates which is substantially free of settled precipitates and has a percent transmittance of greater than about 50 at 570 nanometers measured in the absence of dyes and opacifiers at 25° C.

[04] Also disclosed~~A further aspect of the present technology~~ is a liquid cleaning composition that comprises sulfo-estolide salts and alkyl ester sulfonates wherein the sulfo-estolide salts are