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(54) **PASTE COMPOSITION FOR CLEANING HARD SURFACES**

PASTENZUSAMMENSETZUNG ZUM REINIGEN HARTER OBERFLÄCHEN

COMPOSITION DE PÂTE POUR LE NETTOYAGE DE SURFACE DURE

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EP 3 191 574 B1

Description

Field of the invention

[0001] The invention relates to a composition for removing deposits of encrusted oily or greasy stains from a hard surface.

Background of the invention

[0002] Hard surface cleansing compositions are meant for cleaning surfaces such as kitchen tiles, sinks, hobs, chimney, platforms and soiled articles like utensils, cutlery and crockery.

[0003] Such surfaces are prone to heavy soiling as they often come in contact with oily or greasy substances like cooking media. Over a period of time, such deposits tend to harden or get encrusted. Oily stains and grease are usually easy to remove when they are not hardened or encrusted, however once encrusted, e.g., by aging or baking, the stains become particularly difficult to be removed. Cleaning is easier so long as the stain has not encrusted. If not cleaned promptly, the encrusted oil or grease can bind firmly to the hard surface. US 4457856 discloses liquid dishwashing compositions comprising anionic surfactant, nonionic surfactant, a water-insoluble abrasive having a particle diameter of from about 5 to 250 microns and a hardness on the Mohs scale of from about 2 to about 8, and water; whereby said compositions act on triglyceride-containing soil. Compositions for cleansing hard surfaces usually have high pH. However, low pH formats are also known. The high pH compositions are better at stain removal owing largely due to the highly alkaline nature. However, such compositions are harsh. On the other hand, the compositions having neutral to slightly acidic pH are not as harsh but they are not as effective either. Therefore, such compositions often contain more of hard abrasive particles, typically the ones having Moh's index above 3.5.

[0004] IN204326 discloses compositions in the form of detergent bars having about 14 % anionic surfactant which is formed by reacting linear alkyl benzene sulphonic acid (LAS acid) with stoichiometric excess of dolomite. The reaction leads to a mixture of calcium LAS and magnesium LAS leaving a significant part of free dolomite to serve as an abrasive. In view of the specific format of the product that is exemplified, the composition contains over 70% total abrasives. Usually the bars are used with an implement or scrubber made of nylon. Such an implement augments the inherent abrasive action of the composition and at levels in the range of 70%, the composition inherently has high abrasive action.

[0005] WO2015/078679 A1 (Unilever) discloses a paste composition suitable for cleaning dishes. The composition aids removal of tough stains like burnt-on soot and/or burnt-on food and grease at perceivably lesser efforts and time in comparison to at least some of the known products. The paste has inorganic alkaline material with pH greater than 11 and reserve alkalinity greater than 45 in 1% solution; and an abrasive having Mohs' index greater than 3.5. The strong alkaline nature of the composition augments the cleaning action of the abrasive.

[0006] WO2015/067438 A1 (Unilever) discloses, a hard surface cleaning paste where the primary surfactant is Ca/Mg LAS obtained by reaction of LAS acid with dolomite. The composition also contains fatty acids or esters which gives non-gritty feel and superior soil removal. The compositions abrasive material.

[0007] In WO2004013268A1 (Unilever) is disclosed a synergistic cleaning composition having 0.1 to 40 wt% surfactant and 0.1 to 40 wt% shape selective particulate abrasive having roundness factor of 0.6 to 1.0. Dolomite is used for neutralization of linear alkyl benzene sulphonic (LAS) acid leading to a mixture of linear alkyl benzene sulphonate having a mixture of calcium and magnesium as counterions.

[0008] Therefore, as far as state of the art pertaining to hard surface cleansing compositions in paste form is concerned; on the one hand there are highly alkaline compositions containing high level of sodium salt of linear alkyl benzene sulphonate as the anionic surfactant, and on the other hand, there are neutral or slightly acidic compositions, containing calcium-LAS and/or magnesium-LAS, which either contain high levels of strong abrasives or no abrasive at all.

[0009] Thus there is an unmet need for cleaning compositions in paste or cream format with neutral to slightly acidic pH and have optimum level and type of abrasive, but which still are highly effective against deposits of encrusted oily/greasy stains on hard surfaces.

Summary of the invention

[0010] It has now been determined that neutral to slightly acidic paste or cream compositions can be made more effective against deposits of encrusted oily/greasy stains on a hard surface through the use of an abrasive system having two types of milder abrasives at weight ratio within a particular range. The unexpected finding is that calcite with Moh's index of 3 and the second abrasive with index less than 3; which constitute the abrasive system, provide very good stain removal even though each is considered to be mildly abrasive according to the said scale.

[0011] In accordance with a first aspect is disclosed a cream composition for cleaning hard surfaces having:

(i) 0.5 wt% to 15 wt% anionic surfactant of which at least 90 parts is calcium or magnesium salt of linear alkyl benzene sulphonic acid, or a mixture of the two; and,
(ii) 10 wt% to 50 wt% of an abrasive system comprising a first abrasive which is calcite and a second abrasive, other than calcite, having Moh's index less than 3.0,

wherein weight ratio of the first to said second abrasive is from 1:0.15 to 1:6 and wherein pH of said composition is in the range of 6 to 7.5.

[0012] In accordance with a second aspect is disclosed use of a composition of the first aspect for removing deposits of encrusted oily or greasy stains from a hard surface.

[0013] In accordance with a third aspect is disclosed a method of removing encrusted oily or greasy stains deposited on a hard surface, the method having the steps of applying thereon a composition of the first aspect, scrubbing the stained part with a scrubber or a cloth and wiping with a wet cloth.

Detailed description of the invention

[0014] Disclosed cream composition has:

(i) 0.5 wt% to 15 wt% anionic surfactant of which at least 90 parts is calcium or magnesium salt of linear alkyl benzene sulphonic acid, or a mixture of the two; and,
(ii) 10 wt% to 50 wt% of an abrasive system comprising a first abrasive which is calcite and a second abrasive, other than calcite, having Moh's index less than 3.0,

wherein weight ratio of the first to said second abrasive is from 1:0.15 to 1:6 and wherein pH of said composition is in the range of 6 to 7.5.

Hard surface

[0015] The compositions disclosed herein are generally suited for cleaning hard surfaces. The hard surface could be any household or industrial surface, but household surfaces are specifically considered and the invention will be explained further with reference to this application. Typical hard surfaces include glass, wood, tiles and other ceramic materials, metal surfaces, polished stones and polished concrete; more preferably stone or concrete kitchen tops, hobs, chimneys, platforms, sink, glass windows and cooker tops and tiles.

The composition

[0016] Disclosed composition is in a cream form. The term cream, as used herein, also includes the closely related "paste format" and all references to the term cream should be interpreted to include the equivalent format of paste.

[0017] Such products are generally packaged in collapsible tubes, plastic bottles, sachets and even jars as well as other forms of packaging.

Anionic surfactants:

[0018] The composition essentially includes 0.5 wt% to 15 wt% anionic surfactant which is primarily responsible for cleaning action. Excess anionic surfactant often results in too much foam leading to more water being used for rinsing. At least 90% of the total anionic surfactant is calcium or magnesium salt of linear alkyl benzene sulphonic acid or a mixture of the two. This can be obtained by neutralisation of a suitable precursor of the anionic surfactant, like linear alkyl benzene sulphonic acid with an alkaline salt of calcium or magnesium, e.g., carbonate. A preferred method of obtaining a mixture of calcium and magnesium salts is by neutralisation of an acid precursor of the surfactant (linear alkyl benzene sulphonic acid) with a mineral from the dolomites group. When stoichiometric excess of the mineral is used, a part of it is utilised for neutralisation and the unreacted part usually remains in the neutralised mass which subsequently gets incorporated into the cleansing composition to serve as a hard abrasive.

[0019] Preferred compositions have total anionic surfactant content of 2 wt% to 12 wt%, more preferably 3 wt% to 8 wt%. In further preferred compositions, all of the anionic surfactant content is made of calcium or magnesium salt of linear alkyl benzene sulphonic acid or a mixture of the two.

[0020] The term "dolomite group or generally dolomites" refers to minerals with an unusual trigonal symmetry and with the general formula $AB(CO_3)_2$, where A is calcium and B is magnesium. Dolomites can be selected from the naturally occurring materials such as Ankerite Ca(Fe, Mg, Mn) $(CO_3)_2$, Benstonite (Ba, Sr)$_6$(Ca, Mn)$_6$Mg$(CO_3)_{13}$, Dolomite $CaMg(CO_3)_2$ and Huntite $CaMg_3(CO_3)_4$. The term "dolomite" refers to a particular mineral from the class "dolomites"

and its molecular formula is as given earlier. The basic anionic (negatively charged) unit of this class consists of a triangle where at the centre resides a carbon atom. At every corner of the triangle is an oxygen atom. The threefold symmetry of the triangle explains the trigonal symmetry that many members of this class possess. The structure of the dolomites group of minerals is layered in such a way that the "A" metal ions occupy one layer which is followed by a carbonate layer which is followed by the "B" metal ion layer followed by another carbonate layer.

[0021] Balance of the anionic surfactant, may be any suitable surfactant such as water soluble salt of organic sulphuric reaction products having an alkyl radical containing from 8 to 22 carbon atoms, and sulphuric acid ester. Non-limiting examples of the anionic surfactants include alkylpoly(ethoxylates), sodium lauryl ether sulphates and methyl ester sulphonates.

[0022] The composition may also contain other surfactants, (other than anionic). These include nonionic, cationic, amphoteric and zwitterionic surfactants. However, their role is limited to providing secondary benefits, such as foam reduction, or to augment the cleaning action of anionic surfactants. Accordingly, it is preferred that, when present, their aggregate wt% is less than 15 wt%, more preferably less than 10 wt% and most preferably in the range of 1.5 wt% to 5 wt%.

[0023] Preferred compositions have 0.5 wt% to 5 wt% non-ionic surfactant. Suitable non-ionic surfactants can be broadly described as compounds produced by the condensation of alkylene oxide groups, which are hydrophilic in nature, with an organic hydrophobic compound which may be aliphatic or alkyl aromatic in nature. The length of the hydrophilic or polyoxyalkylene radical which is condensed with any particular hydrophobic group can be readily adjusted to yield a water-soluble compound having the desired degree of balance between hydrophilic and hydrophobic elements.

[0024] Particular examples include the condensation product of aliphatic alcohols having from 8 to 22 carbon atoms in either straight or branched chain configuration with ethylene oxide, such as a coconut oil ethylene oxide condensate having from 2 to 15 moles of ethylene oxide per mole of coconut alcohol; condensates of alkylphenols whose alkyl group contains from 6 to 12 carbon atoms with 5 to 25 moles of ethylene oxide per mole of alkylphenol; condensates of the reaction product of ethylenediamine and propylene oxide with ethylene oxide, the condensate containing from 40 to 80% of polyoxyethylene radicals by weight and having a molecular weight of from 5,000 to 11,000; tertiary amine oxides of structure R_3NO, where one group R is an alkyl group of 8 to 18 carbon atoms and the others are each methyl, ethyl or hydroxyethyl groups, for instance dimethyldodecylamine oxide; tertiary phosphine oxides of structure R_3PO, where one group R is an alkyl group of from 10 to 18 carbon atoms, and the others are each alkyl or hydroxyalkyl groups of 1 to 3 carbon atoms, for instance dimethyldodecylphosphine oxide; and dialkyl sulphoxides of structure R_2SO where the group R is an alkyl group of from 10 to 18 carbon atoms and the other is methyl or ethyl, for instance methyltetradecyl sulphoxide; fatty acid alkylolamides; alkylene oxide condensates of fatty acid alkylolamides and alkyl mercaptans. The nonionic surfactants can also be selected from a range of alkyl poly glucosides.

[0025] Suitable amphoteric surfactants are derivatives of aliphatic secondary and tertiary amines containing an alkyl group of 8 to 18 carbon atoms and an aliphatic radical substituted by an anionic water-solubilizing group, for instance sodium 3-dodecylamino-propionate, sodium 3-dodecylaminopropane sulphonate and sodium N-2-hydroxydodecyl-N-methyltaurate. Suitable cationic detergent-surfactant compounds are quaternary ammonium salts having aliphatic radical of from 8 to 18 carbon atoms, for instance cetyltrimethyl ammonium bromide.

[0026] Suitable zwitterionic surfactants that may be used are derivatives of aliphatic quaternary ammonium, sulphonium and phosphonium compounds having an aliphatic radical of from 8 to 18 carbon atoms and an aliphatic radical substituted by an anionic water-solubilising group, for instance 3-(N-N-dimethyl-N-hexadecylammonium) propane-1-sulphonate betaine, 3-(dodecylmethyl sulphonium) propane-1-sulphonate betaine and 3-(cetylmethylphosphonium) ethane sulphonate betaine.

[0027] Further examples of suitable surfactants are given in the well-known textbooks "Surface Active Agents" Vol. 1, by Schwartz & Perry, Interscience 1949, Vol. 2 by Schwartz, Perry & Berch, Interscience 1958, and/or the current edition of "McCutcheon's Emulsifiers and Detergents" published by Manufacturing Confectioners Company or in "Tenside-Taschenbuch", H. Stache, 2nd Edn., Carl Hauser Verlag, 1981.

Abrasives

[0028] The cream composition includes 10 wt% to 50 wt% of an abrasive system which is made up of a first abrasive which is calcite and a second abrasive, other than calcite, having Moh's index less than 3.0. The weight ratio of said first to second abrasive ranges from 1:0.15 to 1:6.

[0029] In preferred compositions the abrasive system makes up 20 wt% to 45 wt% of the total composition.

[0030] The first abrasive is calcite (calcium carbonate) and the second abrasive is any abrasive having Moh's index less than 3.0. This abrasive is not calcite. In preferred compositions the second abrasive is china clay, talc, gypsum, bentonite, hectorite, montmorillonite, muscovite, phlogopite, pyrophyllite or vermiculite. A particularly preferred second abrasive is china clay. Thus, in a particularly preferred embodiment of the composition, the abrasive system is made up of a first abrasive which is calcite and a second abrasive which is china clay.

[0031] The cream composition may further contain 5 wt% to 20 wt% abrasive having Moh's index in the range of 3.5

to 5.0. These include dolomite, feldspar, silica, aluminium oxide, amalgam, anatase, apatite, boron carbide, corundum (natural aluminium oxide), crystolon, cuttlebone, diopside, emery, enamel, enstatite, fluorite, garnet, glass beads, hematite, kyanite, magnetite, olivine, orthoclase, petalite, porcelain, feldspathic , pyrite, pumice, quartz, silica sand, silicon carbide, spinel, spodumene, staurolite, topaz, titanium dioxide, tungsten carbide, zirconium silicate, zirconia, particulate zeolites, silicates, other carbonates, aluminas, bicarbonates, borates, sulphates and polymeric materials such as polyethylene.

[0032] However, the presence of such abrasives is not necessary but only preferred to get additional abrasive action. It has been found that compositions having higher pH i.e. pH in the range of 8 to 11 but devoid of the disclosed abrasive system are not as good at grease removal and are not considered to be mild. On the other hand, compositions with neutral to mildly acidic pH containing significant amount of strong abrasive with Moh's index of 3.5 to 5 are mild, but not as good at grease removal.

[0033] Without wishing to be bound by theory it is believed that the abrasive system having the first abrasive (calcite) and a second abrasive, other than calcite, having Moh's index less than 3.0 act synergistically and provide higher grease removal of from about 70% to as high as about 90%. Further, as each abrasive is mildly abrasive, their combined effect though generally expected to be mild, is seen to unexpectedly provide significant grease removal. It is therefore believed that ability of calcite to dislodge encrusted grease is augmented by the second abrasive with Moh's index less than 3.0. Such effect was also not observed in compositions containing calcite and dolomite (Moh's index 3.5, a stronger abrasive) but which were devoid of a second abrasive as disclosed herein.

[0034] In preferred compositions, the average particle size of each abrasive is 0.5 to 400 μm, more preferably 10 to 200 μm.

[0035] In preferred compositions, the weight ratio of the first abrasive (calcite) to the second abrasive is from 1:0.15 to 1:6 and in more particularly preferred compositions it is 1:0.5 to 1:3.

[0036] Viscosity of such cream compositions is in the range of 600 cps to 1200 cps. The viscosity can be measured by any known means/procedure. It is preferred that viscosity is measured by a Controlled-stress Rheometer, Ex. TA Instruments *AR 1000* series. Parallel flat plate geometry having diameter of 4 cm is used. The gap between the plate and the base is set to 1000 μm. Data is analyzed by the TA data analysis software. A sample of the paste is placed on the base and the plate is brought to the set geometry gap. The viscosity is measured at shear rates varying from 10 to 25 s^{-1} and reported at 20 s^{-1}.

[0037] The pH of the compositions is in the range of 6 to 7.5, more preferably 6 to 7. The pH is measured at 25 °C of a neat (undiluted) sample.

Water

[0038] The paste/cream composition further includes 20 to 60 wt% water, preferably 30 to 65 wt% and more preferably 40 to 65 wt%.

Optional ingredients

[0039] The composition according may contain other ingredients that aid the cleaning performance. For example, the composition may contain builders such as citrates, dicarboxylic acids, water-soluble phosphates especially polyphosphates, mixtures of ortho- and pyrophosphates, zeolites, sodium carbonate, sodium silicate, disodium silicate, sodium meta silicate and mixtures thereof. Such builders can additionally function as abrasives if present in an amount in excess of their solubility in water. In addition to the ingredients already mentioned, various other optional ingredients such as structurants, colourants, soil suspending agents, detersive enzymes, perfume and preservatives may be included for their respectively known benefits.

[0040] In accordance with a second aspect is disclosed use of a cream composition of the first aspect for removing deposits of encrusted oily or greasy stains from a hard surface.

[0041] In accordance with a third aspect is disclosed a method of removing encrusted oily or greasy stains deposited on a hard surface, the method having the steps of applying thereon a composition of the first aspect, scrubbing the stained part with a scrubber or a cloth and wiping with a wet cloth.

[0042] The composition is spread uniformly over the hard surface to be cleaned and then is scrubbed with a scrubber or a cloth. The surface is then rinsed or wiped with a tissue paper/cloth till it has completely dried.

[0043] The invention will now be illustrated by means of the following non-limiting examples.

Examples

Example 1: Preparation of a control composition

[0044] A premix was prepared by mixing 5 g commercial grade sodium carbonate in 92 g de-mineralised water at 50 °C. To this premix was added 32 g of LAS acid (Linear alkyl benzene sulphonic acid, (Reliance Industries, India)) and the contents were further mixed for five minutes for neutralization. Completion of the reaction was confirmed by checking pH of the mix; and pH of 8 or more indicates complete neutralisation. To this neutralised mass, 5 g methyl laurate was added and mixed, which was followed by addition of 18 g of C12-3EO non-ionic surfactant. Mixing continued for two more minutes. This premix was stored in an oven maintained at 50 °C.

[0045] In a separate vessel, 0.06 g of an antifoam silicone emulsion was mixed with 358 g demineralised water at 50 °C. To this aqueous mixture, 35 g sodium carbonate was added and mixed, followed by addition of 450 g calcite. To this mix, 153 g of the premix described earlier was added mixing continued for five minutes. The composition was allowed to cool for one hour. Subsequently, other ingredients like colorants and perfume were added to the composition.

Example 2: Preparation of a preferred cream composition

[0046] A premix was prepared by mixing 10 g dolomite with 91 g de-mineralised water at 50 °C. To this, 32 g of LAS acid (as mentioned above) was added and mixed further for 5 minutes in order to achieve complete neutralisation. Completion of the reaction was confirmed by ensuring that pH of the mix was in the range of 6 to 7.5. To this neutralized mass, 5 g of methyl laurate ester was added and mixed further, followed by addition and mixing of 17 g non-ionic surfactant (as above). This premix (245 g) was stored in an oven maintained at 50 °C.

[0047] In a separate vessel, 22 g calcite was mixed with 400 g demineralised water at 50 °C followed by 130 g china clay and further mixing for 2 minutes. To this mix, 243 g of the above premix was added and mixed for 2 more minutes. This cream composition was allowed to cool for 1 hour and subsequently, other minor ingredients like colorants and perfume were added to the composition.

Preparation of model encrusted stain and method of cleaning

[0048] The compositions described above were tested on steel tile (the hard surface) on which castor oil was deposited. The oil (0.05 - 0.07 g) was deposited on to a stainless steel tile (pre-weighed) using a pipette. The oil was spread on the plate which was left in horizontal position at room temperature for 12 hours in order to allow the oil to form a regular even film. Tiles were then placed in an oven for one hour and the oven was maintained at 100 °C. Tiles were removed, left to cool for one hour and were weighed again to know the precise weight of the encrusted oily/greasy stain.

[0049] The soiled tile was placed in the sample holding area of an Effort Testing Machine (ETM) A cotton cloth was attached to the head of the ETM. A predetermined weight was fixed to the top of the head and the machine was allowed to run for fixed number of rotations. The tile was then removed from the machine, rinsed under tap water, followed by de-mineralised water and then dried in an oven at 50 °C for about thirty minutes. The plate was weighed. The % soil removal was calculated using the difference in the weights.

[0050] Some more control compositions and compositions according to the invention were prepared by procedure described earlier by making suitable modifications.

[0051] Details of all such compositions and the cleaning data is summarised in table 1.

Table 1

Ingredient	wt%/Control compositions			wt%/Compositions according to invention				
	1	2	3	1	2	3	4	5
Water	46.0	46.0	49.0	49.0	49.0	49.0	49.0	49.0
Do-LAS*	-	-	3.2	3.2	3.2	3.2	3.2	3.2
Na-LAS*	3.2	3.2	-	-	-	-	-	-
Dolomite (free)	-	9.0	9.7	9.7	9.7	9.7	9.7	9.7
Sodium carbonate	4.0	4.0	-	-	-	-	-	-
Non ionic surfactant	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7
Calcite	45.0	22.0	35	30.0	22.0	17.5	13.0	5.0

(continued)

Ingredient	wt%/Control compositions			wt%/Compositions according to invention				
China clay	-	13.0	-	5.0	13.0	17.5	22.0	30.0
Perfume, colour, methyl laurate, antifoam and other minors to	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
pH	10.5	10.5	6.5	6.5	6.5	6.5	6.5	6.5
Grease removal/%	69	62	60	79	90	84	80	73
Ratio of calcite to china clay	NA	1:1.69	NA	1:0.16	1:0.59	1:1	1:1.69	1:6

Note:

[0052]

- Do-LAS indicates a mixture of calcium and magnesium salt of linear alkyl benzene sulphonic acid obtained by neutralisation of linear alkyl benzene sulphonic acid with stoichiometric excess of "dolomite", thereby leaving significant quantity of unreacted (free) dolomite for abrasive action.
- Na-LAS is sodium salt of alkyl benzene sulphonic acid obtained by the usual neutralisation reaction

[0053] Table 1 has a set of control compositions and a set of compositions according to the invention.
[0054] While control-1 gives high grease removal, it is harsh to the skin in view of its high pH. Even the inclusion of the abrasive system (calcite and china clay) and further adding dolomite, (as in control-2) did not improve the grease removal index. The index of the control-3 composition was also significantly lower, presumably due to absence of second abrasive.
[0055] Each composition according to the invention, i.e., 1 to 5, provides more grease removal than any of the control compositions and especially the compositions 2, 3 and 4 having ratio in the range of 1:0.5 to 1:3 provide very high grease removal at significantly lower pH.
[0056] The illustrated examples clearly indicate how the need for cleaning compositions in paste or cream format with neutral to slightly acidic pH and having optimum level and type of abrasive is met. The compositions are highly effective against deposits of encrusted oily/greasy stains on a hard surface.

Claims

1. A cream or paste composition for cleaning hard surfaces, comprising:

(i) 0.5 wt% to 15 wt% anionic surfactant of which at least 90 parts is calcium or magnesium salt of linear alkyl benzene sulphonic acid, or a mixture of the two; and,
(ii) 10 wt% to 50 wt% of an abrasive system comprising a first abrasive which is calcite and a second abrasive, other than calcite, having Moh's index less than 3.0,

wherein weight ratio of said first to said second abrasive is from 1:0.15 to 1:6, and wherein pH of said composition is in the range of 6 to 7.5 measured at 25 °C of a need sample.

2. A composition as claimed in claim 1 wherein said weight ratio is from 1:0.5 to 1:3.

3. A composition as claimed in claim 1 or 2 wherein said second abrasive is china clay, talc, gypsum, bentonite, hectorite, montmorillonite, muscovite, phlogopite, pyrophyllite or vermiculite.

4. A composition as claimed in claim 3 wherein said second abrasive is china clay.

5. A composition as claimed in any one of the preceding claims 1,2, 3 or 4 wherein the anionic surfactant is obtained by neutralisation of linear alkyl benzene sulphonic acid with a mineral of dolomites group.

6. A composition as claimed in claim 5 wherein the mineral is dolomite.

7. A composition as claimed in any one of the preceding claims 1, 2, 3, 4, 5 or 6 further comprising 0.5 wt% to 5 wt% non-ionic surfactant.

8. A composition as claimed in any one of the preceding claims 1, 2, 3, 4, 5, 6 or 7 further comprising 5 wt% to 20 wt% abrasive having Moh's index of 3.5 to 5.0.

9. Use of a cream or paste composition as claimed in claim 1 for removing deposits of encrusted oily or greasy stains from a hard surface.

10. A method of removing deposits of encrusted oily or greasy stains from a hard surface, the method comprising the steps of applying thereon a composition as claimed in claim 1, scrubbing the stained part with a scrubber or a cloth and wiping with a wet cloth.

Patentansprüche

1. Creme- oder Pasten-Zusammensetzung zum Reinigen harter Oberflächen, umfassend:

   (i) 0,5 Gew.-% bis 15 Gew.-% anionisches Tensid, wovon mindestens 90 Teile Calcium- oder Magnesium-Salz der linearen Alkylbenzolsulfonsäure oder eine Mischung der beiden sind, und
   (ii) 10 Gew.-% bis 50 Gew.-% eines Schleifsystems, umfassend ein erstes Schleifmittel, welches Calcit ist, und ein zweites Schleifmittel, ausgenommen Calcit, mit einem Mohs-Index von weniger als 3,0,

   wobei das Gewichtsverhältnis des ersten zum zweiten Schleifmittel von 1:0,15 bis 1:6 liegt und wobei der pH der Zusammensetzung in dem Bereich von 6 bis 7,5, gemessen bei 25°C an einer unverdünnten Probe, liegt.

2. Zusammensetzung, wie im Anspruch 1 beansprucht, wobei das Gewichtsverhältnis von 1:0,5 bis 1:3 liegt.

3. Zusammensetzung, wie im Anspruch 1 oder Anspruch 2 beansprucht, wobei das zweite Schleifmittel Kaolin, Talk, Gips, Bentonit, Hectorit, Montmorillonit, Muskovit, Phlogopit, Pyrophyllit oder Vermiculit ist.

4. Zusammensetzung, wie im Anspruch 3 beansprucht, wobei das zweite Schleifmittel Kaolin ist.

5. Zusammensetzung, wie in irgendeinem der vorhergehenden Ansprüche 1, 2, 3 oder 4 beansprucht, wobei das anionische Tensid durch Neutralisieren linearer Alkylbenzolsulfonsäure mit einem Mineral der Dolomit-Gruppe erhalten wird.

6. Zusammensetzung, wie im Anspruch 5 beansprucht, wobei das Mineral Dolomit ist.

7. Zusammensetzung, wie in irgendeinem der vorhergehenden Ansprüche 1, 2, 3, 4, 5 oder 6 beansprucht, die ferner 0,5 Gew.-% bis 5 Gew.-% nicht-ionisches Tensid umfasst.

8. Zusammensetzung, wie in irgendeinem der vorhergehenden Ansprüche 1, 2, 3, 4, 5, 6 oder 7 beansprucht, die ferner 5 Gew.-% bis 20 Gew.-% Schleifmittel mit einem Mohs-Index von 3,5 bis 5,0 umfasst.

9. Verwendung einer Creme- oder Pasten-Zusammensetzung, wie im Anspruch 1 beansprucht, zum Entfernen von Ablagerungen von verkrusteten öligen oder fettigen Schmutzflecken von einer harten Oberfläche.

10. Verfahren zum Entfernen von Ablagerungen von verkrusteten öligen oder fettigen Schmutzflecken von einer harten Oberfläche, wobei das Verfahren die Schritte des darauf Auftragens einer Zusammensetzung, wie im Anspruch 1 beansprucht, Schrubben des verschmutzten Teils mit einem Schrubber oder einem Tuch und Abwischen mit einem feuchten Tuch umfasst.

Revendications

1. Composition de crème ou pâte pour le nettoyage de surfaces dures, comprenant :

(i) de 0,5 % en masse à 15 % en masse de tensioactif anionique dont au moins 90 parties sont un sel de calcium ou de magnésium d'acide alkylbenzènesulfonique linéaire, ou un mélange des deux ; et,
(ii) de 10 % en masse à 50 % en masse d'un système abrasif comprenant un premier abrasif qui est la calcite et un second abrasif, différent de la calcite, ayant un indice de Mohs inférieur à 3,0,

où le rapport en masse dudit premier audit second abrasif est de 1:0,15 à 1:6, et où le pH de ladite composition se trouve dans l'intervalle de 6 à 7,5 mesuré à 25°C d'un échantillon non dilué.

2. Composition selon la revendication 1, où ledit rapport en masse est de 1:0,5 à 1:3.

3. Composition selon la revendication 1 ou 2, où ledit second abrasif est du kaolin, du talc, du gypse, de la bentonite, de l'hectorite, de la montmorillonite, de la muscovite, de la phlogopite, de la pyrophyllite ou de la vermiculite.

4. Composition selon la revendication 3, où ledit second abrasif est du kaolin.

5. Composition selon l'une quelconque des revendications 1, 2, 3 ou 4 précédentes, où le tensioactif anionique est obtenu par neutralisation d'acide alkylbenzènesulfonique linéaire avec un minéral du groupe des dolomites.

6. Composition selon la revendication 5, où le minéral est la dolomite.

7. Composition selon l'une quelconque des revendications 1, 2, 3, 4, 5 ou 6 précédentes comprenant de plus de 0,5 % en masse à 5 % en masse de tensioactif non ionique.

8. Composition selon l'une quelconque des revendications 1, 2, 3, 4, 5, 6 ou 7 précédentes comprenant de plus de 5 % en masse à 20 % en masse d'abrasif ayant un indice de Mohs de 3,5 à 5,0.

9. Utilisation d'une composition de crème ou pâte selon la revendication 1 pour l'élimination de dépôts de taches huileuses ou graisseuses incrustées d'une surface dure.

10. Procédé d'élimination de dépôts de tâches huileuses ou graisseuses incrustées d'une surface dure, le procédé comprenant les étapes d'application sur son dessus d'une composition selon la revendication 1, de friction de la partie tachée avec une brosse ou un tissu et d'essuyage avec un tissu humide.

REFERENCES CITED IN THE DESCRIPTION

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