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WASHING COMPOSITION

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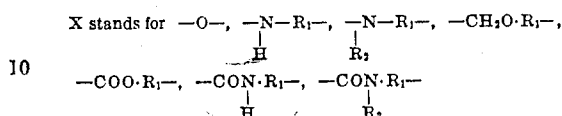
No Drawing. Application October 4, 1934, Serial No. 746,924. In Germany September 4, 1931

9 Claims. (Cl. 87—5)

The present invention relates to washing compositions consisting of mixtures of pyrophosphoric acid and washing agents of the following general formula:



wherein



R stands for an aliphatic radical with at least 7 carbon atoms,

R₁ and R₂ stand for aliphatic, aromatic or hydroaromatic radicals,

Me stands for an alkali metal atom or ammonium.

When being used for washing white linen goods, at a temperature of above 50° C., the new washing compositions have the property of imparting to the goods a soft and good touch. The washing agents of the aforementioned general formula which are stable against the compounds causing the hardness of water have the property of yielding precipitates of calcium and magnesium salts on the textile goods after repeated washing if hard water is used and particularly in the presence of sodium carbonate. These separations deposit in the textile fabric and impart to these goods a hard feel. If salts of pyrophosphoric acid are added to these washing agents, it is surprising that the deposition of calcium carbonate or magnesium carbonate in the textile fabric is prevented, even in the presence of sodium carbonate and in very hard water. The salts of the pyrophosphoric acid together with the salts causing the hardness of water yield precipitates which can readily be washed away so that the goods, even after a repeated washing, have a soft and agreeable handle.

As washing agents of the above-named formula which may be used for washing in hard water, there may, for instance, be cited the following: the alkali metal salts of oleic acid-methyltauride, of lauric acid-phenyltauride, of stearic acid tauride, of palmitic acid-ethyltauride, of butyl-tauride of fatty acids from palmmut oil, of hexadecyl-methyl-taurine and of octadecyl-taurine, of the ether from myricyclic alcohol and phenol-sulfonic acid, of the ether of n-dodecyl-alcohol and hydroxyethane-sulfonic acid, of the sulfuric acid ester of octadecyl-alcohol, of the sulfuric acid esters of a mixture of alcohols called

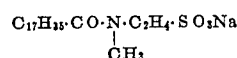
"lorol" (prepared by a catalytic hydrogenation of coconut oil under a high pressure).

As salts of pyrophosphoric acid there may be used the potassium salt, the sodium salt and the ammonium salt. The washing composition may also be mixed with other substances which are usually added to washing agents, i. e. bleaching agents. As bleaching agents, there may, for instance, be used perborates, such as sodium perborate, percarbonates, such as sodium percarbonate, persulfates, such as potassium persulfate.

The following examples serve to illustrate the invention, but they are not intended to limit it thereto, the parts being by weight:—

As an agent for washing white linen goods there may be used the following mixtures:

(1) 60 parts of the sodium salt of the reaction product of stearic acid chloride and methyl-taurine of the following formula:



30 parts of sodium carbonate and 10 parts of sodium pyrophosphate.

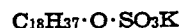
(2) 40 parts of the sodium salt of the oleic acid ester of hydroxy-ethane-sulfonic acid of the following formula:



40 parts of sodium sulfate and 20 parts of sodium pyrophosphate.

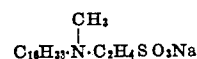
(3) 230 parts of fatty acid chloride from palm nut oil are caused to react in an aqueous solution in the presence of caustic soda solution wherein sodium taurine has been dissolved so that the solution always has a feebly alkaline reaction. After the reaction is complete the reaction product is evaporated. 60 parts of the condensation product thus obtained are ground together with 20 parts of sodium carbonate, 10 parts of sodium perborate and 10 parts of potassium pyrophosphate.

(4) 50 parts of the potassium salt of octadecyl-sulfuric acid of the following formula:



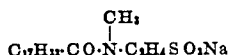
20 parts of anhydrous sodium carbonate, 15 parts of potassium pyrophosphate.

(5) 50 parts of the sodium salt of hexadecyl-methyl-taurine of the following formula:



25 parts of sodium carbonate, 15 parts of sodium perborate and 10 parts of sodium pyrophosphate.

(6) 20 parts of the sodium salt of the reaction product of oleic acid chloride and methyl taurine of the following formula:



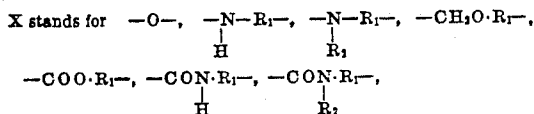
and 80 parts of potassium salt of pyrophosphoric acid.

We claim:

1. A washing composition consisting of a water-soluble salt of pyrophosphoric acid and a wetting and cleansing compound of the following formula:



wherein



R stands for an aliphatic hydrocarbon radical with at least 7 carbon atoms,

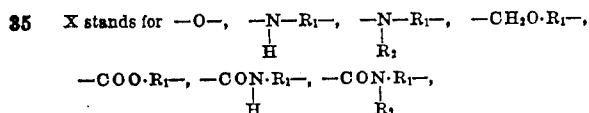
R₁ and R₂ represent a member of the group consisting of aliphatic and aromatic hydrocarbon radicals,

Me stands for an alkali metal atom or ammonium.

2. A washing composition consisting of a water-soluble salt of pyrophosphoric acid, a wetting and cleansing compound of the following formula:



wherein

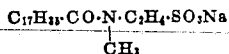


R stands for an aliphatic hydrocarbon radical with at least 7 carbon atoms,

R₁ and R₂ represent a member of the group consisting of aliphatic and aromatic hydrocarbon radicals,

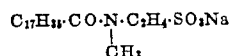
Me stands for an alkali metal atom or ammonium, and a bleaching agent selected from the groups consisting of water-soluble perborates, persulfates and percarbonates.

3. A washing composition consisting of sodium pyrophosphate and a compound of the following formula:



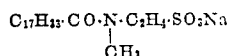
4. A washing composition consisting of 20 parts by weight of sodium pyrophosphate, 40

parts by weight of a compound of the following formula:

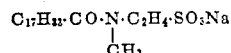


and 40 parts of sodium carbonate.

5. A washing composition consisting of potassium pyrophosphate and a compound of the following formula:



6. A washing composition consisting of 80 parts by weight of potassium pyrophosphate, 20 parts by weight of a compound of the following formula:



7. A washing composition consisting of sodium pyrophosphate and a compound of the following formula:

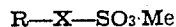


8. A washing composition consisting of 20 parts by weight of sodium pyrophosphate, 40 parts by weight of a compound of the following formula:

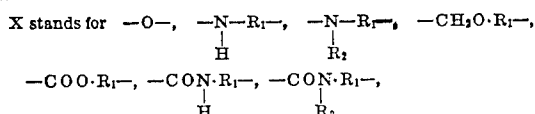


and 40 parts of sodium sulfate.

9. A washing composition consisting of a water-soluble salt of pyrophosphoric acid, a wetting and cleansing compound of the following formula:



wherein



R stands for an aliphatic hydrocarbon radical with at least 7 carbon atoms,

R₁ and R₂ represent a member of the group consisting of aliphatic and aromatic hydrocarbon radicals,

Me stands for an alkali metal atom or ammonium, sodium carbonate and a bleaching agent selected from the group consisting of water-soluble perborates, persulfates and percarbonates.

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