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(71) Applicant: UNILEVER NV
Burgemeester s'Jacobplein 1 P.O. Box 760
NL-3000 DK Rotterdam(NL)

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(71) Applicant: UNILEVER PLC
Unilever House Blackfriars P O Box 68
London EC4P 4BQ(GB)

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GB

(72) Inventor: Foster, Francis Geoffrey
4 Westway Greasby
Wirral Merseyside(GB)

(72) Inventor: Leigh, Arthur George
High Trees Quarry Road East Heswall
Wirral Merseyside(GB)

(72) Inventor: Stirling, Thomas
78 Davenham Avenue Oxton
Birkenhead Merseyside(GB)

(74) Representative: Tan, Bian An et al,
Unilever N.V. Patent Division P.O. Box 137
NL-3130 AC Vlaardingen(NL)

(54) Cleaning composition.

(57) A low phosphate, alumino-silicate built cleaning composition having improved bleach performance is described comprising

a) 15-50% by weight of a water-insoluble alumino-silicate cation exchange material;

b) 3-30% by weight of a peroxide bleach;

c) 0.5-15% by weight of an activator for said peroxide bleach; and

d) 1-15% by weight of a nitrilotriacetic acid compound, wherein the percentage quantities of (a) + 2(d) is between 30 and 55.

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CLEANING COMPOSITION

This invention relates to cleaning compositions which are particularly, but not essentially, adapted for fabric washing, and more particularly to alumino-silicate built cleaning compositions.

It is known to incorporate a bleach system comprising a peroxide bleach such as sodium perborate, together with a peracid bleach precursor, also called an activator, in detergent compositions so as to provide an effective bleaching at lower temperatures. Such detergent compositions conventionally include a phosphate detergency builder such as sodium triphosphate. In some circumstances, it is thought that the use of phosphates in detergent compositions can lead to environmental problems in waste waters. There is therefore a desire to eliminate or to reduce the level of phosphorus in detergent compositions.

Water-insoluble alumino-silicate cation exchange materials have been suggested as alternative builders to phosphates (see for example GB 1 429 143, GB 1 470 250, GB 1 504 211, GB 1 529 454 and US 4 064 062). However, it has been found that in alumino-silicate built compositions the performance of this bleach system is significantly reduced.

We have now surprisingly found that the bleach performance can be substantially improved if the alumino-silicate built composition contains a nitrilotriacetic acid compound at certain critical levels.

Thus, according to the invention there is provided an alumino-silicate built cleaning composition comprising:

a) from 15% to 50% by weight of a water-insoluble alumino-silicate cation exchange material;

b) from 3% to 30% by weight of a peroxide bleach;
c) from 0.5% to 15% by weight of an activator for said peroxide bleach; and
d) from 15% to 1% by weight of a nitrilotriacetic acid compound,

wherein the percentage quantities (a) + 2(d) is between about 30 and about 55, preferably between about 40 and 55.

Generally, the cleaning compositions of the invention will include at least one organic soap or synthetic detergent-active material. Preferably, from about 5% to 40% by weight of an organic, anionic, nonionic, amphoteric or zwitterionic detergent compound, soap or mixtures thereof are included. Many suitable detergent-active compounds are commercially available and are fully described in the literature, for example in "Surface Active Agents and Detergents", Volumes I and II, by Schwartz, Perry and Berch.

The preferred detergent-active compounds which can be used are synthetic anionic, soap and nonionic compounds. The first-mentioned are usually water-soluble alkali metal salts of organic sulphates and sulphonates having alkyl radicals containing from about 8 to about 22 carbon atoms, the term alkyl being used to include the alkyl portion of higher aryl radicals. Examples of suitable anionic detergent compounds are sodium and potassium alkyl sulphates, especially those obtained by sulphating higher (C_8-C_{18}) alcohols produced for example from tallow or coconut oil; sodium and potassium alkyl (C_9-C_{20}) benzene sulphonates, particularly sodium linear secondary alkyl (C_{10}-C_{15}) benzene sulphonates; sodium alkyl glyceryl ether sulphates, especially those ethers of the higher alcohols derived from tallow or coconut oil and synthetic alcohols derived from petroleum; sodium coconut oil fatty acid monoglyceride sulphates and sulphonates; sodium and potassium salts of sulphuric acid esters of higher (C_9-C_{18}) fatty alcohol-alkylene oxide, particularly ethylene oxide, reaction products; the reaction products of fatty acids such as coconut fatty acids esterified with isethionic acid and neutralized with sodium hydroxide; sodium and potassium salts of fatty acid amides of methyl taurine; alkane monosulphonates such as those derived by reacting alpha-olefins (C_8-C_{20}) with sodium bisulphate and those derived by reacting paraffins with SO_2 and Cl_2 and then hydrolyzing with a base to produce a random sulphonate; olefin sulphonates, which term is used to describe the material made by reacting olefins, particularly C_{10}-C_{20} alpha-olefins, with SO_3 and then neutralizing and hydrolyzing the reaction product; and alkali metal salts of long-chain C_8-C_{22} fatty acids such as the sodium soaps of tallow, coconut oil, palmkernel oil, palm oil or hardened rapeseed oil fatty acids or mixtures thereof. The preferred anionic detergent compounds are sodium (C_{11}-C_{15}) alkyl benzene sulphonates and sodium (C_{16}-C_{18}) alkyl sulphates.

Examples of suitable nonionic detergent compounds which may be used include the reaction products of alkylene oxides, usually ethylene oxide, with alkyl (C_6-C_{22}) phenols, generally 5 to 25 EO, i.e. 5 to 25 units of ethylene oxide per molecule; the condensation products of aliphatic (C_8-C_{18}) primary or secondary linear or branched alcohols with ethylene oxide, generally 6 to 30 EO, and products made by condensation of ethylene oxide with the reaction products of propylene oxide and ethylenediamine. Other so-called nonionic detergent compounds include long-chain tertiary amine oxides, long-chain tertiary phosphine oxides and dialkyl sulphoxides.

Mixtures of detergent-active compounds, for example mixed anionic or mixed anionic and nonionic compounds, may be used in the detergent compositions, particularly in the latter case to provide controlled low sudsing properties. This is beneficial for compositions intended for use in suds-intolerant automatic washing machines.

Amounts of amphoteric or zwitterionic detergent-active compounds can also be used in the compositions of the invention, but this is not normally desired owing to their relatively high cost. If any amphoteric or zwitterionic detergent-active compounds are used, it is generally in small amounts in compositions based on the much more commonly used synthetic anion and/or nonionic detergent-active compounds.

The alumino-silicate cation exchange material is a crystalline or amorphous material having the general formula:

$$(Cat_{2/n}O)_x \cdot Al_2O_3 \cdot (SiO_2)_y \cdot zH_2O$$

wherein Cat is a cation having valency n that is exchangeable with calcium (e.g. Na^+ or K^+); x is a number from 0.7 - 1.5; y is a number from 1.3 - 4; and z is such that the bound water content is from 10% to 28% by weight.

Preferably a crystalline material is used which can be described by the unit cel content:

$$Na_x\left[(AlO_2)_x \cdot (SiO_2)_y\right]zH_2O$$

wherein x and y are integers of at least 6, the ratio of x to y being in the range of 1 : 1 to 1 : 2; and z is such that the bound water content is from 10% to 28% by weight.

The alumino-silicate preferably has a particle size of from 0.1 to 100 micrometers, ideally between 0.1 and

10 micrometers, and an ion exchange capacity of at least 200 mg $CaCO_3$ per gram of alumino-silicate (anhydrous basis).

In a preferred embodiment, the water-insoluble alumino-silicate is a crystalline material having the formula described by the unit cell content:

$$Na_{12}(AlO_2)_{12}.(SiO_2)_{12}.zH_2O$$

wherein z is from 20 to 30, preferably about 27.

An example of this material is the commercially available product known as Zeolite type A, which is typically:

$$Na_2O.Al_2O_3.2SiO_2 \sim 4.5\ H_2O$$

and is also described by the unit cell content:

$$Na_{12}\left[(AlO_2)_{12}.(SiO_2)_{12}\right].\ 27\ H_2O.$$

The bleach system used in the present invention essentially comprises a peroxy bleach compound which is an inorganic persalt, and an activator therefor. The activator makes the bleaching more effective at lower temperatures, i.e. in the range from ambient temperature to about 60°C, so that such bleach systems are commonly known as low-temperature bleach systems and are well known in the art. The inorganic persalt, such as sodium perborate, acts to release active oxygen in solution, and the activator therefor is usually an organic compound having one or more reactive acyl residues, which cause the formation of peracids, the latter providing a more effective bleaching action at lower temperatures than the peroxy bleach compound.

The ratio by weight of the peroxy bleach compound to the activator in the composition of the invention may vary from about 30 : 1 to about 1 : 1, preferably from 15 : 1 to 2 : 1. A particularly preferred ratio is from 5 : 1 to 2 : 1.

Whilst the amount of the bleach system, i.e. peroxy bleach compound and activator, may be varied between about 3.5% and about 45% by weight of the detergent compositions, it is preferred to use about 5% to about 35% of the ingredients forming the bleach system.

Typical examples of suitable peroxy bleach compounds are alkali metal perborates, both tetrahydrates and monohydrates, alkali metal percarbonates, persilicates and perphosphates, of which sodium perborate is preferred.

Activators for peroxy bleach compounds have been amply described in the literature, including British patents 836 988, 855 735, 907 356, 907 358, 970 950, 1 003 310 and 1 246 339, U.S. patents 3 332 882 and 4 128 494, Canadian patent 844 481 and South African patent 68/6 344. Specific suitable activators include:

(a) N-diacylated and N,N'-polyacylated amines, such as N,N,N',N'-tetraacetyl methylene diamine and N,N,N',N'-tetraacetyl ethylene diamine, N,N-diacetylaniline, N,N-diacetyl-p-toluidine; 1,3-diacylated hydantoins such as, for example, 1,3-diacetyl-5,5-dimethyl hydantoin and 1,3-dipropionyl hydantoin; α-acetoxy-(N,N,N')-polyacylmalonamide, for example α-acetoxy-(N,N')-diacetylmalonamide;

(b) N-alkyl-N-sulphonyl carbonamides, for example the compounds N-methyl-N-mesyl-acetamide, N-methyl-N-mesyl-benzamide, N-methyl-N-mesyl-p-nitrobenzamide and N-methyl-N-mesyl-p-methoxybenzamide;

(c) N-acylated cyclic hydrazides, acylated triazones or urazoles, for example monoacetylmaleic acid hydrazide;

(d) O,N,N-tribubstituted hydroxylamines, such as O-benzoyl-N,N-succinyl hydroxylamine, O-acetyl-N,N-succinyl hydroxylamine, O-p-methoxybenzoyl-N,N-succinyl hydroxylamine, O-p-nitrobenzoyl-N,N-succinyl hydroxylamine and O,N,N-triacetyl hydroxylamine;

(e) N,N'-diacyl-sulphurylamides, for example N,N'-dimethyl-N,N'-diacetyl sulphurylamide and N,N'-diethyl-N,N'-dipropionyl sulphurylamide;

(f) Triacylcyanurates, for example triacetyl cyanurate and tribenzoyl cyanurate;

(g) Carboxylic acid anhydrides, such as benzoic anhydride, m-chloro-benzoic anhydride, phthalic anhydride and 4-chloro-phthalic anhydride.

(h) Sugar esters, for example glycose pentaacetate;

(i) 1,3-diacyl-4,5-diacyloxy-imidazolidine, for example 1,3-diformyl-4,5-diacetoxy-imidazolidine, 1,3-diacetyl-4,5-diacetoxy-imidazoline, 1,3-diacetyl-4,5-dipropionyloxy-imidazoline;

(j) Tetraacetylglycoluril and tetrapropionylglycoluril;

(k) Diacylated 2,5-diketopiperazine, such as 1,4-diacetyl-2,5-diketopiperazine, 1,4-dipropionyl-2,5-diketopiperazine and 1,4-dipropionyl-3,6-dimethyl-2,5-diketopiperazine;

(l) Acylation products of propylenediurea or 2,2-dimethyl-propylenediurea (2,4,6,8-tetraaza-bicyclo-(3,3,1)-nonane-3,7-dione or its 9,9-dimethyl derivative), especially the tetraacetyl- or the tetrapropionyl-propylenediurea or their dimethyl derivatives;

(m) Carbonic acid esters, for example the sodium salts of p-(ethoxycarbonyloxy)-benzoic acid and p-(propoxy-carbonyloxy)-benzene sulphonic acid;

(n) α-Acyloxy-(N,N')-polyacyl malonamides, such as α-acetoxy-(N,N')-diacetyl malonamide.

The N-diacetylated and N,N'-polyacylated amines mentioned under (a) are of special interest, particularly N,N,N',N'-tetraacetylethylenediamine (TAED).

It is preferred to use the activator in granular form, preferably wherein the activator is present in finely divided form as described in our GB Patent Specification N° 2 053 998. Specifically, it is preferred to have an activator of an average particle size of less than 150 micrometers, which gives significant improvement in bleach efficiency. The sedimentation losses, when using an activator with an average particle size of less than 150 /um, are substantially decreased. Even better bleach performance is obtained i the average particle size of the activator is less than 100 /um. However, too small a particle size gives increased decomposition, dust formation and handling problems, and although particle sizes below 100 /um can provide an improved bleaching efficiency, it is desirable that the activator should not have more than 20% by weight of particles with a size of less than 50 /um. On the other hand, the activator may have a certain amount of particles of a size greater than 150 /um, but it should not contain more than 5% by weight of particles > 300 /um, and not more than 20% by weight of particles > 150 /um. If needle-shaped crystalline activator particles are used, these sizes refer to the needle diameter. It is to be understood that these particle sizes refer to the activator present in the granules, and not to the granules themselves. The latter have generally a particle size, the major part of it ranging from 100 to 2000 /um, preferably 250 to 1000 /um. Up to 5% by weight of granules with a particle size of > 1600 /um and up to 10% by weight of granules < 250 /um is tolerable. The granules incorporating the activator, preferably in this finely divided form, may be obtained by granulating the activator with a suitable carrier material, such as sodium tripolyphosphate and/or potassium tripolyphosphate. Other granulation methods, e.g. using organic and/or inorganic granulation aids, can also be usefully applied. The granules can be subsequently dried, if required. Basically, any granulation process is applicable, as long as the granule contains the activator, and as long as the other materials present in the granule do not negatively affect the activator.

The nitrilotriacetic acid compounds contemplated for use in the present invention may be represented by the following structural formula:

$$N \equiv (CH_2COOX)_3$$

wherein X is hydrogen or a water-solubilizing cation, such as sodium, potassium and ammonium cations. They may further contain C-bonded substituents of an inert and innoxious nature, such as alkyl, e.g. methyl, ethyl, etc., halo alkyl e.g. chloromethyl. The nature of said compounds is not particularly critical with the implicit limitation that such substituents be devoid of any tendency to deleteriously affect the desirable properties of the nitrilotriacetic acid compound.

Preferred compounds falling within the ambit of the above-described definition and formula are nitrilotriacetic acid, trisodium nitrilotriacetate, tripotassium nitrilotriacetate, disodium nitrilotriacetate and dipotassium nitrilotriacetate.

The amount of nitrilotriacetic acid compound (NTA), taken as trisodium nitrilotriacetate, in the compositions of the invention may be varied between 1 and 15% by weight of the composition and will depend on the amount of alumino-silicate cation exchange material. The percentage quantity of nitrilitriacetic acid compound (N) and the percentage quantity of alumino-silicate cation exchange material (A) are such that the sum of A+2N lies between about 30 and about

55, preferably between 40 and 55. A preferred range of NTA usable in the present invention is from 2.5 to 10% by weight of the composition.

The cleaning compositions of the present invention are preferably substantially free of inorganic phosphate builders. However, if desired, the compositions may contain inorganic phosphate such as the alkali metal (preferably sodium) triphosphate, pyrophosphate, orthophosphate or polymer phosphate, but only at a level of below 12.5% by weight based on the composition.

Apart from the components already mentioned, the cleaning compositions of the invention can contain any of the conventional additives in the amounts in which such materials are normally employed in fabric-washing detergent compositions. Examples of these additives include lather boosters such as alkanolamides, particularly the monoethanolamides derived from palmkernel fatty acids and coconut fatty acids; lather depressants such as alkyl phosphates and silicones; antiredeposition agents such as sodium carboxymethylcellulose, polyvinyl pyrrolidone and the cellulose ethers such as methyl cellulose and ethyl hydroxyethyl cellulose; stabilizers such as ethylenediamine tetraacetic acid, ethylenediamine tetramethylene phosphonate and diethylenetriamine pentamethylene phosphonate; fabric-softening agents; inorganic salts such as sodium sulphate and sodium carbonate; and - usually present in very minor amounts - fluorescent agents, perfumes, enzymes such as proteases and amylases; germicides and colourants.

It is desirable to include one or more antideposition agents in the cleaning compositions of the invention, to decrease a tendency to form inorganic deposits on washed fabrics. The amount of any such antideposition agent is normally from about 0.1% to about 5% by weight, preferably from about 0.2% to about 2.5% by weight of the composition. The preferred antideposition agents are anionic polyelectrolytes, especially polymeric aliphatic carboxylates, or organic phosphonates.

Other non-phosphate detergency builders may be incorporated as well if desired, but only in minor amounts, preferably not more than 10% by weight of the cleaning composition.

It may also be desirable to include in the compositions an amount of an alkali metal silicate, particularly sodium ortho-, meta- or preferably neutral or alkaline silicate. The presence of such alkali metal silicates at levels of at least about 1%, and preferably from about 5% to about 15% by weight of the composition, is advantageous in decreasing the corrosion of metal parts in washing machines, besides giving processing benefits and generally improved powder properties. The more highly alkaline ortho- and meta-silicates would normally only be used at lower amounts within this range, in admixture with the neutral or alkaline silicates.

The compositions of the invention are required to be alkaline, but not too strongly alkaline as this could result in fabric damage and also be hazardous for domestic usage. In practice the compositions should give a pH of from about 8.5 to about 11 in use in aqueous wash solution. It is preferred in particular for domestic products to have a pH of from about 9.0 to about 10.5, as lower pHs tend to be less effective for optimum detergency, and more highly alkaline products can be hazardous if misused. The pH is measured at the lowest normal usage concentration of 0.1% w/v of the product in water of 12°H (Ca) (French permanent hardness, calcium only) at 50°C so that a satisfactory degree of alkalinity can be assured in use at all normal product concentrations.

The cleaning compositions of the invention are preferably presented in free-flowing particulate e.g. powdered or granular form, and can be produced by any of the techniques commonly employed in the manufacture of such washing compositions, but preferably by slurry-making and spray-drying processes to form a detergent base powder to which the heat-sensitive ingredients, e.g. the bleach system and optionally some other ingredients as desired, are added. It is preferred that the process used to form the compositions should result in a product having a moisture content of not more than about 12%, more preferably from about 4% to about 10% by weight, as the lower moisture levels have been found to be beneficial for stability of the bleach systems employed.

The invention will now be illustrated by the following non-limiting examples.

Examples I - II

The following cleaning powders were prepared by spray-drying a detergent slurry, followed by post-dosing the sensitive ingredients including the bleach system.

Composition (% by weight)	A	B	I	II
Sodium alkylbenzene sulphonate	6.5	6.5	6.5	6.5
Nonionic detergent active	3.0	3.0	3.0	3.0
Sodium soap	5.0	5.0	5.0	5.0
Zeolite HAB A 40 (alumino-silicate ex Degussa)	30.0	40.0	30.0	30.0
Trisodium nitrilotri-acetate (NTA)	-	-	10.0	10.0
Alkaline silicate	6.0	6.0	6.0	6.0
Sodium ethylenediamine tetraacetate (Na-EDTA)	0.2	0.2	0.2	0.2
Tetraacetylethylene-diamine (TAED)	3.0	3.0	3.0	3.0
Sodium perborate	6.0	6.0	6.0	6.0
Ethylenediaminetetra-methylene phosphonate (as 100% acid)	0.3	0.3	0.3	0.3
Sodium sulphate	30.0	20.0	20.0	20.0
Water and minor ingredients	——— to 100 ———			

Composition A contained 30% Zeolite and 0% NTA.
Composition B contained 40% Zeolite and 0% NTA.
Composition I contained 30% Zeolite and 10% NTA (post dosed).
Composition II contained 30% Zeolite and 10% NTA (slurry).

These powders were tested for their bleaching action in a Tergotometer on standard tea-stained test cloths, using water of 35°H and a product dosage of 5 g/l at two wash cycles:

(i) Heat-up wash 16°C-90°C, 80 minutes,
(ii) Heat-up 16°C-55°C extended wash, 60 minutes (28 minutes heat-up to 55°C, followed by 32 minutes at 55°C).

At the end of each wash the bleaching performance on the standard test pieces was determined by measuring the reflectance at 460 nm on a Zeiss Elrepho photometer using a 420 nm UV interference filter (R 460*) and compared with the reflectance of the samples before washing. The results obtained were as follows:

Builder		Δ R 460	
(i) Heat-up to 90°C wash			
A	30% Zeolite	9.2	(8.7)
B	40% Zeolite	12.3	(7.8)
I	30% Zeolite + 10% NTA	17.8	(17.5)
II	30% Zeolite + 10% NTA	19.3	(18.8)
(ii) Heat-up to 55°C, extended wash			
A	30% Zeolite	3.8	(3.3)
B	40% Zeolite	6.4	(3.1)
I	30% Zeolite + 10% NTA	12.3	(9.9)
II	30% Zeolite + 10% NTA	14.1	(12.0)

Note: The figures in parenthesis are the results obtained with cleaning powders not containing ethylenediaminetetramethylene phosphonate (EDTMP).

The above results clearly show the surprisingly superior performance of the compositions I and II of the invention as compared with the control samples A and B without NTA.

Examples III - X

Compositions similar to those used in Examples I - II with varying builder mixtures were used in the following bleaching tests carried out in the same manner as described in Examples I - II. The results were as follows:

Compositions		Heat-up to 90°C (Δ R 460*)
C	contained 50% Zeolite	19.8
III	contained 50% Zeolite + 2.5% NTA	23.5
D	contained 40% Zeolite/7.5% STP1)	- 14.7
IV	contained 40% Zeolite/7.5% STP/1% NTA	- 19.0

1) STP = sodium triphosphate

Compositions		Heat-up to 55°C, extended wash (Δ R 460*)
E	contained 40% Zeolite	- 4.5
F	contained 50% Zeolite	- 7.5
V	contained 50% Zeolite/2.5% NTA	- 15.0
VI	contained 40% Zeolite/5.0% NTA	- 16.1
VII	contained 20% Zeolite/15.0% NTA	- 15.6
G	contained 40% Zeolite/7.5% STP	- 8.2
VIII	contained 40% Zeolite/7.5% STP/1.0% NTA	- 13.0
H	contained 30% Zeolite/2% STP	- 5.9
IX	contained 30% Zeolite/1% NTA	- 9.2
K	contained 30% Zeolite/4% STP	- 7.4
X	contained 30% Zeolite/2% STP/1% NTA	- 9.5

Note: Compositions C and III contained 0.3% EDTMP.
Compositions D-K and IV-X did not contain EDTMP.

The above results again show the surprisingly superior performance of the compositions of the invention (III - X) as compared with the respective control samples C - K.

Example XI

This Example shows the importance of critical NTA level and NTA/alumino-silicate ratio.
Six detergent compositions comprising 6% sodium perborate and 3% tetraacetyethylenediamine (activator, similar to those used in Examples I - II without EDTMP, were prepared with varying builder mixtures and tested for their bleach performance in a heat-up extended wash from 16-55°C, using water of 35° French Hardness.

The results were as follows:

Builder mixture	A + 2N	Heat-up to 55°C, extended wash (Δ R 460*)
30% Zeolite	-	9.7
30% Zeolite + 1% NTA	32	12.8
30% Zeolite + 10% NTA	50	17.8
30% Zeolite + 15% NTA	60	14.4
30% Zeolite + 25% NTA	80	11.2

Example XII

The following two compositions were prepared and compared in a heat-up to 55°C extended wash test as described in Examples I - II.

Composition (% by weight)	XII$_1$	XII$_2$	L$_1$	L$_2$
Sodium alkylbenzene sulphonate	6.5	6.5	6.5	6.5
Nonionic detergent active	3.0	3.0	3.0	3.0
Sodium soap	5.0	5.0	5.0	5.0
Amorphous alumino-silicate	20.0	20.0	40.0	40.0
Trisodium nitrilotriacetate (NTA)	15.0	15.0	-	-
Alkaline silicate	6.0	6.0	6.0	6.0
Sodium ethylenediaminetetraacetate (Na-EDTA)	0.2	0.2	0.2	0.2
Tetraacetylethylenediamine (TAED)	3.0	3.0	3.0	3.0
Sodium perborate	6.0	6.0	6.0	6.0
Sodium sulphate	25.0	25.3	20.0	20.3
EDTMP (as 100% acid)	0.3	-	0.3	-
Water and minor ingredients	to 100			

The results were as follows:

	Reflectance (Δ R 460*)
Composition XII$_1$	14.8
Composition XII$_2$	14.1
Composition L$_1$	11.8
Composition L$_2$	9.8

Again the improvement in bleaching performance resulting from the use of NTA according to the invention is clearly shown.

CLAIMS

1. A low phosphate, alumino-silicate built cleaning composition, characterized in that it comprises:

a) from 15 to 50% by weight of a water-insoluble alumino-silicate cation exchange material;
b) from 3 to 30% by weight of a peroxide bleach;
c) from 0.5 to 15% by weight of an activator for said peroxide bleach; and
d) from 1 to 15% by weight of a nitrilotriacetic acid compound,

wherein the percentage quantities of (a) + 2(d) is between 30 and 55.

2. A cleaning composition according to claim 1, characterized in that the percentage quantities (a) + 2(d) is between 40 and 55.

3. A cleaning composition according to claim 1 or 2, characterized in that the nitrilotriacetic acid compound is present in an amount of 2.5 to 10% by weight.

4. A cleaning composition according to any one of claims 1-3, characterized in that the nitrilotriacetic acid compound is sodium nitrilotriacetate.

5. A cleaning composition according to any one of claims 1-4, characterized in that the ratio by weight of the peroxide bleach to the activator in the composition is from 5:1 to 2:1.

6. A cleaning composition according to any of the above claims, characterized in that it further comprises at least one organic detergent-active material.

7. A cleaning composition according to claim 6, characterized in that said organic detergent active material is present in an amount of 5 to 40% by weight of the total composition.

8. A cleaning composition according to any of the above claims, characterized in that it contains an inorganic phosphate builder at a level of below 12.5% by weight.

9. A cleaning composition according to claim 8, characterized in that it is substantially free of inorganic phosphate builders.