
Cleaning agent having a urea content

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DESCRIPTION

The invention relates to a cleaning agent for cleaning
surfaces of vehicles of all types, of large external
10 surfaces, in particular of buildings, of plants in the
food and tobacco and alcohol industries, in particular
of milking installations or milking equipment, as well
as of plants and equipment having metallic, ceramic
and/or plastic surfaces. In addition, it also relates
15 to various refinements of the applications described
above. Thus, this agent is also suitable for the
cleaning, sanitizing and/or disinfecting of equipment
in the food processing industry and for medical
apparatuses. The cleaning agents of the present
20 invention can moreover be used for the cleaning of a
milking plant/milking machine, for cleaning of large
surfaces, for example surfaces of a building or floors,
for cleaning vehicles (for example cars) or for
cleaning dental prostheses.

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Closed systems are understood according to the
invention as meaning installations that are completely
closed off from their surroundings during operation,
for example, dishwashers, washing machines or the like,
30 or are hermetically sealed off from the surroundings
before putting into operation and are opened only on
putting into operation, for example installations for
food processing or alternatively medical technology
equipment, for example rinsing devices for operating
35 theaters and dentist's chairs, dialysis equipment,
heart/lung machines, endoscopes and similar medical
technology equipment. While in the first-mentioned
systems the cleaning agent is circulated during
operation, in the last-mentioned systems the system is

rinsed with the cleaning agent. Here, the cleaning agent serves not only for cleaning purposes, but is also used for sanitizing and/or optionally for disinfecting.

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Cleaning agents for closed systems, e.g. dishwashing detergents, detergents for washing machines, agents for rinsing by hand and sanitary cleansers are agents which are used in almost every household. Modern dishwashing
10 detergents, e.g. those that are described in WO 2007/141257, typically contain surfactants, builders, bleaching agents and enzymes as the main components.

Enzymes are molecules, in particular proteins, that can
15 catalyze a certain chemical reaction. Enzymes play an important role in the metabolism of all living organisms; they catalyze and control many biochemical reactions, for example in the copying (DNA polymerase) or transcribing (RNA polymerase) of the genetic
20 information. For example, proteases, amylases, catalases, peroxidases, cellulases and/or lipases are used as enzymes in dishwasher detergents. The use of proteases and amylases is preferred.

25 Compared with the other constituents of a modern cleaning agent for closed systems, dishwasher detergents or sanitary cleaners, enzymes are comparatively expensive. Despite the use of expensive enzymes, the cleaning action of modern cleaning agents,
30 such as dishwasher detergents, is often only unsatisfactory. Moreover, the use of enzymes is often accompanied with disadvantages, for example the dishwasher detergent can only be employed in a certain temperature and pH range, and stability problems, in
35 particular on relatively long storage, can occur. Finally, it is problematic from environmental points of view if uncontrolled amounts of enzyme pass into the waste water. Furthermore, working with enzymes in the

production or use of enzyme-containing products is not unproblematical (for example allergy potential).

It was therefore the object of the invention to overcome the disadvantages explained above, in particular to make available a cleaning agent that is environmentally- and surface-friendly in the various possibilities of use and desirably effective in a wide pH range (neutral, alkaline, acidic). From environmental and cost points of view, this cleaning agent should make it possible to manage without the customary environmentally polluting phosphate builders, and to advantageously reduce the amount of enzymes and bleaching agents employed, which are customarily used in conventional cleaning agents. It should make it possible that preferably only biodegradable and/or bioregenerable substances are used, in particular, only those that are degradable according to EN ISO 14593: 199 (headspace test).

The object on which the invention is based is generally achieved by a cleaning agent (A) for cleaning surfaces of vehicles of all types, of large external surfaces, in particular of buildings, plants in the food and tobacco and alcohol industries, in particular milking installations, as well as of plants and equipment having metallic, ceramic and/or plastic surfaces, comprising (a) 10 to 90% of urea, (b) 5 to 70% by weight of one or more electrolytes, (c) 0.1 to 35% by weight of one or more surfactants and (d) 0.01 to 20% by weight of one or more complexing agents.

The cleaning agent (A) can in particular be advantageously refined in the following manner: Thus it is preferred that it contains 10 to 70% by weight, in particular 20 to 60% by weight, of urea. Moreover, it is expedient that electrolytes are present in the form of alkali metal and/or alkaline earth metal salts, in particular in the form of sodium salts. The complexing

agents to be taken into consideration according to the invention are preferably present in the form of citrates, nitrilotriacetate (NTA), ethylenediamine triacetate (TED), ethylenediamine tetraacetate (EDTA),
5 methylglycidine acetate (MGDA), in particular in the form of the sodium salts.

Various advantageous refinements of the cleaning agent (A), including the advantageous embodiments of the
10 cleaning agent (A), in the form of cleaning agents (B) to (H) according to the invention, are described below. Furthermore, specific advantageous refinements are designated for the respective cleaning agents (B) to (H). After the description of the cleaning agent (H),
15 various details for advantageous embodiments of all cleaning agents according to the invention are found. The person skilled in the art will take into consideration, based on the respective purpose of use of the cleaning agent, the particularly advantageous
20 refining features.

A particular refinement of the cleaning agent (A), also in its advantageous and described embodiments, proves to be in a cleaning agent (B) for the cleaning of
25 surfaces of motor vehicles of all types, in particular of heavy goods vehicles, buses, motor cars, motorcycles, bicycles, tractors, ships, aircraft, these in particular having metallic- and/or plastic-based surfaces, here in particular paint-based, it
30 additionally containing a thickener, in particular in the form of carboxymethylcellulose, preferably in an amount from 0.001 to 3% by weight. The amount of thickener is preferably 0.001 to 1% by weight. Bearing in mind that also metals, in particular metallic
35 surfaces, are to be cleaned, it is of particular advantage in the case of the cleaning agent (B) that it contains anticorrosion agents, in particular in the form of a phosphonate. The anticorrosion agent is preferably present in an amount from 0.1 to 5% by

weight. It is of particular advantage if the cleaning agent (B) contains care agents, in particular in the form of silicone and/or wax emulsions. In addition, it is of advantage here that an abrasive, in particular in the form of silicon dioxide, is contained in the cleaning agent (B), in particular in an amount from 0.001 to 1% by weight. It is to be noted here that the advantageous features, which are described in connection with the cleaning agent (B), can of course also be used for advantageous refinements of the cleaning agent (A), described above.

A particular embodiment of the cleaning agent (A) according to the invention consists in a cleaning agent (C) for the cleaning of external surfaces of all types, in particular of floor surfaces, roofs, wall surfaces, path and terrace surfaces, and also solar surfaces and the like. This is characterized in that it contains decalcifiers and/or microbicides, in particular against algae, moss, fungi and/or lichens. In the case of the cleaning agent (C), it is preferred that it contains decalcifiers, in particular in the form of amidosulfonic acid and/or citric acid. The amount of the decalcifier is preferably approximately 1 to 20% by weight, in particular approximately 5 to 15% by weight. Silicon dioxide is preferred here as an abrasive. The abrasive is preferably present in an amount from 0.1 to 5% by weight. The amount of silicon dioxide is expediently between 0.1 and 3% by weight. The preferred embodiments of the cleaning agent (C) spoken of here equally apply, as the person skilled in the art can discern, generally as possible advantageous embodiments of the cleaning agents (A) and (B).

A particularly advantageous embodiment of the cleaning agent (A) according to the invention proves to be in a cleaning agent (D), which is characterized in that it contains corrosion inhibitors, in particular in the form of a phosphonate, in the case of the treatment of

metallic surfaces of all types, in particular of iron, stainless steel, aluminum, magnesium, titanium, copper, zinc, tin, brass or having chromed surfaces, in the treatment of milking installations and surgical equipment. It is normally preferred here that it contains corrosion inhibitors in an amount from 0.1 to 5% by weight, in particular in an amount from 0.3 to 3% by weight. Furthermore, it is preferred if in the case of alkaline application bleaching agents, in particular in the form of a per compound, are present. It is preferred here that the per compound is present as a persulfate and/or percarbonate, in particular in the form of the sodium salt, this in particular in an amount from 0.1 to 5% by weight. The range from 0.1 to 3% by weight is particularly preferred. In the case of the cleaning agent (D), it is moreover preferred that for adjusting the desired efficacy of the bleaching agent, a suitable activator is employed, in particular in the form of tetraacetythylenediamine (TAED). Furthermore, it is preferred for the degradation of organic substances to incorporate enzymes, in particular in an amount from 0.1 to 5% by weight, the range from 0.3 to 3% by weight being particularly preferred. The cleaning agent (D) expediently contains citric acid and/or amidosulfonic acid on its use in acidic medium.

A further preferred cleaning agent according to the invention (A) will be designated here as cleaning agent (E). This serves for the cleaning of ceramic surfaces and/or plastic surfaces of dental prostheses, it being characterized in that it contains acids, in particular citric acid and alkali metal bicarbonate for gas evolution, in particular in an amount from 1 to 10% by weight, the surfaces of dental prostheses in particular being based on: plastics, bridges made of metal, on ceramics, on VMC (veneer metal ceramic) as well as on zirconium dioxide as a structure for full ceramic crowns and full ceramic bridges.

The cleaning agent (E) preferably contains bleaching agent, in particular in the form of a per compound, this in particular with a relevant activator. The per
5 compound is preferably a percarbonate, in particular in the form of the sodium salt. Finally, the cleaning agent (E) according to the invention expediently contains a stabilizer, in particular in the form of a sugar alcohol, this in particular in the form of
10 sorbitol. It is advantageous if it contains an antimicrobial agent, in particular with efficacy against yeast fungi, streptococci, Escherichia and also against pseudomonads and Legionella.

15 Further, the advantage of the cleaning agent (A) according to the invention also proves to be in a cleaning agent (F), which is used for the treatment of kitchen equipment or kitchen machines, in particular of coffee machines, of hot water boilers, of egg boilers,
20 of bottle warmers for baby bottles and also of baby bottles and baby jars, it also being possible here to realize the above features emphasized as advantageous in connection with the other cleaning agents according to the invention.

25 Finally, another cleaning agent (G) is assigned to the invention that is particularly advantageous for the treatment of surfaces of surgical equipment as well as for surfaces of milking installations. Here, the
30 surfaces to be treated are essentially of metallic nature, in particular based on iron, stainless steel, aluminum, magnesium, titanium, copper, zinc, tin, brass as well as integrated sealing components, in particular of plastic, or integrated display glasses of plastic or
35 special glass.

The cleaning agents (A) to G) according to the invention, as described above, and also the following cleaning agents (H) according to the invention, can be

present in solid form or in liquid form. In liquid form, the quantitative and qualitative details of the description of the invention as well as the claims materialize. Expediently, it is initially present in solid form. It is preferred here that it is present in the form of particles, in particular in the form of a powder. It is particularly preferred if it is present in the form of pressed articles or tablets or filled into sachets. In this form, it can be introduced into a variety of use areas. Depending on application case, it may be preferred to prepare a solution from the cleaning agent according to the invention, this especially in water. In individual cases, it is preferred to use an organic solvent miscible therewith additionally to water, provided the object underlying the invention is adequately considered thereby, in particular environmental protection.

In the realization of the invention, a cleaning agent has also proven to be particularly advantageous that is contained in a set and with which the frame conditions according to the invention outlined above are set on use or before use, in particular urea initially being separated from the other components of the cleaning agent.

A central feature of the invention is the use of large amounts of carbamide (urea). In the context of the cleaning agent according to the invention the advantageous results in combination with further features follow from the properties of urea. Back to carbamide (urea):

It is a neutral, odourless, very readily water-soluble, nontoxic product, that is excreted by the human body as the end product of nitrogen metabolism in amounts from 20 to 30 g per day and counts among the most environmentally friendly substances in nature. It can be decomposed here into its constituents NH_3 and CO_2 by

chemical degradation. From this point of view, carbamide - that is to be regarded chemically as the diamide of carbonic acid - can be regarded as the bound form of the two gaseous components NH_3 and CO_2 (in the ratio 2:1), from which it is produced industrially on a large scale because of its use in the field of fertilizers and synthetic resins. The use according to the invention of carbamide in cleaning agents therefore results - in contrast to the strongly environmentally polluting cleaning agents based on phosphate - in a residue-free, consistent material balance, which makes a not inconsiderable contribution to environmental protection.

- 15 The present invention in particular also relates to a cleaning agent (H), comprising
- (a) 5 to 99.9% by weight of carbamide and/or one or more derivatives thereof;
 - (b) 0.1 to 90% by weight of an electrolyte or a number of electrolytes;
 - (c) up to 40% by weight of a surfactant or a number of surfactants;
 - (d) up to 10% by weight of an enzyme or a number of enzymes and
 - 25 (e) up to 20% by weight of a complexing agent or a number of complexing agents, where, to achieve the effects desired according to the invention in the individual application areas, one or more of the features and/or features designated below and above are
- 30 used as refining the invention.

The composition according to the invention contains 5 to 99.9% by weight, preferably 10 to 95% by weight, more preferably 10 to 90% by weight (for example, 10 to 70% by weight), even more preferably 20 to 80% by weight, particularly preferably 25 to 75% by weight, very particularly preferably 20 to 70% by weight and especially 20 to 60% by weight of carbamide (urea)

and/or a derivative or one or more derivatives thereof, based on the total weight of the composition.

5 Cleaning agents for milking installations preferably contain 10 to 80% by weight, preferably 10 to 70% by weight, more preferably 15 to 65% by weight.

10 Cleaning agents for vehicles preferably contain 10 to 80% by weight, preferably 10 to 70% by weight, more preferably 15 to 65% by weight.

15 The cleaning agent according to the invention can be used, for example, for closed systems. With suitable metering of the carbamide, it can also be used as an agent for cleaning, sanitizing and/or disinfecting equipment in the foodstuffs industry and of medical technology equipment.

20 Additionally to carbamide, the composition according to the invention can contain a surfactant or a number of surfactants, such as, for example, anionic, nonionic, cationic and/or amphoteric surfactants. Likewise, any desired mixtures of all surfactants illustrated below are possible.

25 The cleaning agent according to the present invention contains up to 40% by weight (for example up to 10% by weight), preferably 0.01 to 40% by weight, more preferably 0.1 to 30% by weight, even more preferably 30 0.5 to 30% by weight, very particularly preferably 1 to 30% by weight (for example 0.1 to 20% by weight) of one or more surfactants, based on the total weight of the agent.

35 Anionic surfactants are designated in general as surfactants that possess a negatively charged functional group. Anionic surfactants typically possess a polar and a nonpolar moiety. A C₆-C₃₀-alkyl radical preferably serves as the nonpolar moiety. The polar

functional group is preferably -COO^- (carboxylate), -SO_3^- (sulfonate) or -O-SO_3^3 (sulfate).

Examples therefor are:

- 5 alkylcarboxylates of the formula $\text{R-COO}^-\text{Na}^+$, R being an organic radical having 6 to 30, preferably 8 to 16 carbon atoms;
- alkylbenzenesulfonates (ABS) of the formula $\text{C}_n\text{H}_{2n+1}\text{-C}_6\text{H}_4\text{-SO}_3^-\text{Na}^+$, n being 6 to 30, preferably 8 to 16, (for
- 10 example sodium dodecylbenzenesulfonate);
- secondary alkanesulfonates (SAS) of the formula $\text{C}_n\text{H}_{2n+1}\text{-SO}_3^-\text{Na}^+$, n being 6 to 30, preferably 8 to 6; and
- fatty alcohol sulfates (FAS) of the formula $\text{H}_3\text{C-(CH}_2)_n\text{-CH}_2\text{-O-SO}_3^-\text{Na}^+$, n being 6 to 30, preferably 8 to 16, (for
- 15 example sodium lauryl sulfate).

Further examples of anionic surfactants are surfactants that are marketed under the name Lutensit (manufacturer: BASF), such as, for example, Lutensit AS

20 2230.

Suitable surfactants of the sulfonate type here are preferably $\text{C}_9\text{-15}$ -alkylbenzenesulfonates and olefin-sulfonates. Also suitable are alkylsulfonates, which

25 are obtained from $\text{C}_{12\text{-}20}$ -alkanes, for example by sulfochlorination or sulfoxidation with subsequent hydrolysis or neutralization. Furthermore, the esters of α -sulfofatty acids (ester sulfonates), for example the α -sulfonated methyl esters of the hydrogenated

30 coconut, palm kernel or tallow fatty acids are also suitable. A specific example is Ufaryl (e.g. Ufaryl DL 90C), an alkylbenzenesulfonate.

Further suitable anionic surfactants are sulfonated

35 fatty acid glycerol esters. Fatty acid glycerol esters are understood as meaning the mono-, di- and triesters and also their mixtures. Preferred sulfonated fatty acid glycerol esters here are the sulfonated products of saturated fatty acids having 6 to 22 carbon atoms,

for example caproic acid, caprylic acid, myristic acid, palmitic acid, stearic acid or behenic acid.

5 A further class of anionic surfactants is the class consisting of the ether carboxylic acids accessible by reaction of fatty alcohol ethoxylates with sodium chloroacetate in the presence of basic catalysts. Suitable anionic surfactants are further also the partial esters of di- or polyhydroxyalkanes, mono- and
10 disaccharides, polyethylene glycols with the ene adducts of maleic anhydride to at least monounsaturated carboxylic acids having a chain length of 10 to 25 carbon atoms and preferably having an acid number of 15 to 130. Alternatively usable anionic surfactants are
15 the sulfosuccinates, sulfosuccinamates and sulfosuccinamides, in particular sulfosuccinates and sulfosuccinamates, extremely preferably sulfosuccinates.

20 In a preferred embodiment, the cleaning agent according to the invention contains 0.01 to 20% by weight, more preferably 0.1 to 10% by weight, even more preferably 0.5 to 5, particularly preferably 1 to 4, in particular 1.5 to 3% by weight, of nonionic surfactants, based on
25 the total weight of the agent.

Nonionic surfactants are customarily designated as surfactants that essentially contain no dissociable functional groups and therefore do not split into ions
30 in water. Like all surfactants, the nonionic surfactants are also composed of a nonpolar and a polar moiety. As the nonpolar moiety, the nonionic surfactants preferably contain a fatty alcohol (for example C₁₂-C₁₈) or, for example, an octyl or nonylphenol
35 radical. As the polar moiety, the nonionic surfactants preferably contain hydroxyl groups or ether groups.

Examples of nonionic surfactants are:

polyalkylene glycol ethers;
 fatty alcohol ethoxylates (FAEO), in particular of the
 formula $\text{CH}_3-(\text{CH}_2)_{10-16}-(\text{O}-\text{C}_2\text{H}_4)_{1-25}-\text{OH}$;
 fatty alcohol propoxylates (FAPO), in particular of the
 5 formula $\text{CH}_3-(\text{CH}_2)_{10-16}-(\text{O}-\text{C}_3\text{H}_6)_{1-25}-\text{OH}$ -
 alkyl glucosides;
 alkyl polyglucosides (AFG), in particular of the
 formula $\text{CH}_3-(\text{CH}_2)_{10-16}-(\text{O-glycoside})_{1-3}-\text{OH}$;
 octylphenol ethoxylates, in particular of the formula
 10 $\text{C}_8\text{H}_{17}-(\text{C}_6\text{H}_4)-(\text{O}-\text{C}_2\text{H}_4)_{1-25}-\text{OH}$ and/or
 nonylphenol ethoxylates, in particular of the formula
 $\text{C}_9\text{H}_{19}-(\text{C}_6\text{H}_4)-(\text{O}-\text{C}_2\text{H}_4)_{1-25}-\text{OH}$.

Cationic surfactants are designated as surfactants that
 15 have a positively charged functional group. Preferably,
 they are quaternary ammonium compounds of the
 formula $\text{R}_{1a}\text{R}_{2a}\text{R}_{3a}\text{R}_{4a}\text{N}^+\text{X}^-$, R_{1a} to R_{4a} being an organic
 radical having 4 to 20 carbon atoms, preferably a
 stearyl, palmityl, methyl, benzyl or butyl radical, and
 20 X is a counterion, preferably a halide.

Amphoteric surfactants are designated as surfactants
 that possess both a negatively charged as well as a
 positively charged functional group. An alkyl group
 25 preferably serves as a nonpolar moiety, a carboxylate
 group ($\text{R}-\text{COO}^-$) and a quaternary ammonium group
 preferably as a polar moiety.

Further preferred surfactants are nonionic, low-foaming
 30 or solid surfactants, which are marketed, for example,
 under the trademarks Genapol (e.g. Genapol EP 2584),
 Lutensol (e.g. Lutensol AT 25) and Plurafac (e.g.
 Plurafac LF 901) and belong to the class consisting of
 alkyl polyglycol ethers or fatty alcohol ethoxylates.

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In a preferred embodiment, the cleaning agent according
 to the invention contains up to 20% by weight,
 preferably 0.01 to 20% by weight, more preferably 0.5
 to 20% by weight, even more preferably 0.5 to 15% by

weight, particularly preferably 0.2 to 15% by weight, of a complexing agent or a number of complexing agents, based on the total weight of the cleaning agent.

- 5 Complexing agents or complex formers are ligands that contain two or more binding sites. They are thereby able to form particularly stable complexes with multivalent metal ions. Examples of complexing agents are nitrilotriacetate (NTA), ethylenediamino triacetate
10 (TED), ethylenediamine tetraacetate (EDTA), methylglycine diacetate or salts thereof (MGDA) (preferably trisodium salt thereof, e.g. Trilon M), oxalate, maleate, tartrate and/or citrate; the sodium salts thereof are especially preferred. Also in the
15 case of use of citrate/citric acid as electrolytes (and/or pH-adjusting agents), it is preferred that the abovementioned complexing agents are present in the given amounts.
- 20 Further examples of complexing agents are polyacrylic acids and salts thereof (e.g. Sokalan PA 30 CL, a polyacrylic acid having a low molecular weight, completely neutralized as the sodium salt) and also the natural polysaccharide alginate and salts thereof, as
25 well as polyaspartate and salts thereof.

Most complexing agents of this type are often summarized together with other additives of the electrolyte type and the general expression "builder".

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Often these are water-soluble substances or non-water-soluble substances, for example aluminosilicates, and zeolites in particular can be employed as builders.

- 35 Zeolites that are suitable as builders, comprise, for example, zeolite A, zeolite X, zeolite Y and zeolite P.

Other suitable builders are, for example, polyacetals, which can be obtained by conversion of dialdehydes

using polyol carboxylic acids, which preferably contain 5 to 7 C atoms and at least 3 hydroxyl groups. Preferred polyacetals are obtained from dialdehydes such as glyoxal, glutaraldehyde, terephthalaldehyde and mixtures thereof and from polycarboxylic acids, for example gluconic acid and/or glucoheptonic acid.

Further suitable organic builders are dextrans, that is oligomers or polymers of carbohydrates, which can be obtained by the partial hydrolysis of starches. Furthermore, polyacrylates, pectinates, alginates and polyaspartates can also be used as builders, which in the context of the present invention are also regarded as "complexing agents".

Alternatively, builders based on phosphate can also be employed. These, however, are not preferred on environmental grounds. Examples are sodium tripolyphosphates, sodium pyrophosphate and sodium orthophosphate. Preferably, the cleaning agent is phosphate-free or contains only a small amount (e.g. up to 0.19% by weight) of phosphonate as a corrosion inhibitor.

The abovementioned complexing agents and the following components of the electrolyte type can be regarded as suitable builders, which support the observed cleaning efficiency of carbamide.

In a preferred embodiment, the cleaning agent according to the invention also comprises one or more stabilizers. Here, constituents favoring solubilization and/or dispersion typically serve as stabilizers. Preferably, polyalcohols are used as stabilizers. Polyalcohol refers to substances that contain two or more alcohol groups. Examples of suitable stabilizers are glycol, propylene glycol, polyalkylene glycol, in particular polyethylene glycol (e.g. Pluriol®),

polypropylene glycol, glycerol, sorbitol, mannitol or mixtures thereof.

5 The cleaning agent according to the invention can additionally contain a stabilizer or a number of stabilizers in an amount from 0.01 to 20% by weight, preferably from 0.1 to 5% by weight, in particular if a cleaning agent according to the invention in liquid form is concerned.

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In a further preferred embodiment, the cleaning agent according to the invention can moreover contain one or more antibacterial and/or antimycotic and/or antimicrobial additives, namely in particular in the case of a liquid preparation.

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The antibacterial and/or antimycotic and/or antimicrobial additive or additives is/are customarily contained in an amount from 0.01 to 5% by weight, preferably from 0.1 to 2% by weight. Preservatives permitted in food chemistry are, for example, sodium formate, sodium sorbate or PHB ester. Furthermore, suitable additives having an antimicrobial spectrum of action can be used.

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The cleaning agent of the present invention can contain enzymes. These enzymes are typically contained in an amount of up to 10% by weight (e.g. 0.01 to 10% by weight), preferably up to 5% by weight (e.g. 0.01 to 5% by weight), especially 1 to 5% by weight), more preferably 0.1 to 3% by weight, especially 0.5 to 2.5% by weight, based on the total weight of the cleaning agent.

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35 Examples of suitable enzymes are proteases, lipases, amylases and cellulases. Specific examples are coated enzyme preparations available commercially in solid form, for example Savinase 6.0 T, Lipolase 100 T and Termamyl 120 T.

Further examples of enzymes comprise:

- proteases such as BLAP[®] 140 (manufacturer: Henkel); Savinase[®] 4.0 T, 6.0 T, 8.0 T (manufacturer: Novo).
- 5 - amylases, such as Termamyl[®] 60 T, 90 T, Duramyl[®] (manufacturer: Novo); Amylase-LT[®] (manufacturer: Solvay Enzymes); especially α -amylases, such as Termamyl[®], Termamyl[®]ultra, Duramyl[®].
- lipases, such as Lipolase[®]30 T (manufacturer: 10 Novo).

Besides the abovementioned constituents, the cleaning agent according to the invention can also contain one or more fragrances. Fragrances are natural or synthetic 15 substances that have an odor, preferably a pleasant odor. Examples of fragrances are:

ambrettolide, [alpha]-amylcinnamaldehyde, anethole, anisaldehyde, anisyl alcohol, anisole, methyl 20 anthranilate, acetophenone, benzylacetone, benzaldehyde, ethyl benzoate, benzophenone, benzyl alcohol, borneol, bornyl acetate, [alpha]-bromostyrene, n-decylaldehyde, n-dodecylaldehyde, eugenol, eugenol methyl ether, 25 eucalyptol, farnesol, fenchone, fenchyl acetate, geranyl acetate, geranyl formate, heliotropin, methyl heptynecarboxylate, heptaldehyde, hydroquinone dimethyl ether, hydroxycinnamaldehyde, hydroxycinnamyl alcohol, indole, iron, isoeugenol, isoeugenol methyl ether, 30 isosafrole, jasmin, camphor, carvacrol, carvone, p-cresol methyl ether, coumarin, p-methoxyacetophenone, methyl n-amyl ketone, methyl methylantranilate, p-methylacetophenone, methyl chavicol, p-methylquinoline, methyl ss-naphthyl ketone, methyl-n-nonylacetaldehyde, 35 methyl n-nonyl ketone, muskone, ss-naphthol ethyl ether, ss-naphthol methyl ether, nerol, nitrobenzene, n-nonylaldehyde, nonyl alcohol, n-octylaldehyde, p-hydroxyacetophenone, pentadecanolide, ss-phenylethyl alcohol, phenylacetaldehyde dimethyl acetal,

phenylacetic acid, pulegone, safrole, isoamyl salicylate, methyl salicylate, hexyl salicylate, cyclohexyl salicylate, santalol, skatole, terpineol, thymene, thymol, [gamma]-undelactone, vanillin, 5 veratraldehyde, cinnamaldehyde, cineamyl alcohol, cinnamic acid, ethyl cinnamate, benzyl cinnamate, alkyl isothiocyanate (alkyl mustard oils), butanedione, limonene, linalool, linalyl acetate and propionate, menthol, menthone, methyl n-heptenone, phellandrene, 10 phenylacetaldehyde, terpinyl acetate, citral and/or citronellal.

Likewise, ethereal oils such as angelica root oil, anise oil, arnica flower oil, basilicum oil, bay oil, 15 champaca flower oil, silver fir oil, noble fir oil, elemi oil, eucalyptus oil, fennel oil, pine needle oil, galbanum oil, geranium oil, ginger grass oil, guaiac wood oil, gurjun balsam oil, helichrysum oil, ho oil, ginger oil, iris oil, cajuput oil, calamus oil, 20 camomile oil, camphor oil, kanagawa oil, cardamon oil, cassia oil, pine oil, copai[iota]ba balsam oil, coriander oil, spearmint oil, caraway oil, cumin oil, lemongrass oil, musk seed oil, myrrh oil, oil of cloves, neroli oil, niaouli oil, olibanum oil, oregano 25 oil, palmarosa oil, patchouli oil, peru balsam oil, petitgrain oil, pepper oil, pimento oil, pine oil, rose oil, rosemary oil, sandalwood oil, celery oil, star anise oil, thuja oil, oil of thyme, verbena oil, vetiver oil, juniper berry oil, wormwood oil, 30 wintergreen oil, ylang-ylang oil, hyssop oil, cinnamon oil, cinnamon leaf oil and/or cypress oil can be used.

Particularly preferably, limonene terpenes and/or orange terpenes are used as fragrances.

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Fragrances are customarily employed in an amount from 0.01 to 3% by weight, preferably from 0.01 to 2% by weight, based on the total weight of the cleaning

agent. If desired, a combination of two or more fragrances, for example 2 to 10, is employed.

Besides fragrances, the cleaning agent according to the invention can also comprise coloring agents (e.g. kiwi green or TAED green).

If the cleaning agent of the present invention is in liquid form, it can contain water and/or one or more nonaqueous solvents.

Suitable nonaqueous solvents originate, for example, from the group consisting of the mono- or polyhydric alcohols, alkanolamines or glycol ethers, provided they are miscible with water. Preferably, the solvents are selected from ethanol, n- or i-propanol, butanols, glycol, propane or butanediol, glycerol, diglycol, propyl or butyl diglycol, hexylene glycol, ethylene glycol methyl ether, ethylene glycol ethyl ether, ethylene glycol propyl ether, ethylene glycol mono-n-butyl ether, diethylene glycol methyl ether, diethylene glycol ethyl ether, propylene glycol methyl, ethyl or propyl ether, dipropylene glycol monomethyl or ethyl ether, di-isopropylene glycol monomethyl or ethyl ether, methoxy-, ethoxy- or butoxytriglycol, 1-butoxyethoxy-2-propanol, 3-methyl-3-methoxybutanol, propylene glycol t-butyl ether, and mixtures of these solvents.

In a further preferred embodiment, a solid cleaning agent is concerned, that is present in particulate form or in the form of pressed tabs or tablets.

The cleaning agent according to the invention contains 0.1 to 90% by weight, more preferably 1 to 70% by weight (e.g. 5 to 70% by weight), even still more preferably 5 to 60% by weight of electrolytes, based on the total weight of the cleaning agent.

Salts, for example sodium sulfate or sodium chloride, influence the physicochemical parameters, for example the ionic strength, which can be advantageous for the cleaning activity as well as for the ability to break
5 inter- and intramolecular H bonds (e.g. in proteins and carbohydrates).

Preferably, the electrolytes are alkali metal and/or alkaline earth metal salts, more preferably alkali
10 metal salts, especially sodium salts. Examples are sodium sulfate or sodium chloride, sodium bicarbonate, sodium carbonate, trisodium citrate, sodium phosphate, sodium phosphonate, sodium acetate, sodium alginate, sodium maleate, etc. According to the complexing and/or
15 pH adjustment power of the anions, trisodium citrate and sodium carbonate are preferably additionally used for pH setting or for pH adjustment buffer systems (e.g. citric acid/sodium hydroxide and/or sodium carbonate/sodium bicarbonate). Therefore, in a
20 preferred embodiment, at least a part of the electrolytes can be a substance or a number of substances that are able to adjust the pH (pH adjuster).

25 In various application cases, in particular in milking installations and the like, it is preferred if the cleaning agent according to the invention has a pH of 7 to 12, in particular of 8 to 11, an acidic and an alkaline treatment taking place alternately. The
30 setting of the necessary acidic pH is described below. Generally, for this technology the following is to be carried out: The cleaning agents for dairy farming to be found on the market, in particular the milking installations, here in particular pipelines and milking
35 units, belong to two groups: alkaline and acidic cleaning agents, which should be employed in exchange. The alkalinity (usually caustic potash or caustic soda) frees, for example, the milk piping from organic (fat- and protein-based) deposits, inter alia also milk

residues. The acidic component (e.g. phosphoric acid, peracetic acid) supplies the chemical energy in the cleaning agent to remove mainly mineral-based deposits, in particular lime deposits. For special applications, they can also be supplemented by chlorine- or oxygen-based additions with disinfecting action.

The pH adjuster here is preferably an alkali agent. Preferably, the alkali agent is present in the form of an alkali-active alkali metal and/or alkaline earth metal salt and/or of an alkali metal and/or alkaline earth metal hydroxide. As the alkali metal, sodium is preferred in these compounds. It is particularly preferred if the alkali-active cleaning agent contains a mixture of sodium hydrogencarbonate and sodium carbonate. Particularly advantageous results are achieved if the mixture of sodium carbonate and sodium hydrogencarbonate is composed such that approximately 2 to 4, in particular approximately 2.8 to 3.3, parts by weight of sodium hydrogencarbonate are allotted to one part by weight of sodium carbonate. Using this mixture, an advantageous pH range of approximately 8 to 11, in particular approximately 9 to 10, is then also set.

Preferably, for the dissolution of lime deposits, in particular milking installations (see above), an acidic pH of 1 to 6, in particular of 2 to 4, is set if the cleaning agent according to the invention is in particular present in an aqueous medium, this in particular being in the form of a 1 to 10% strength by weight solution.

The pH adjuster here is preferably an acidifying agent. Preferably, both inorganic and organic water-soluble free acids, their anhydrides or their acidic salts are used. Besides sodium and potassium hydrogensulfate and/or carbamide phosphate, in particular organic α -hydroxycarboxylic acids (fruit acids), such as, for example, citric acid, tartaric acid, etc. and/or their

anhydrides can advantageously be employed. These are preferably used in mixtures with amidosulfonic acid (e.g. citric acid and amidosulfonic acid in the ratio 3:1).

5

Likewise, it is possible that an increased viscosity of the cleaning agent according to the invention is desired. For example, the cleaning agent according to the invention can be present in the form of a gel. In this case, water or an organic liquid, for example alcohol, is used as a filler, where, however, a thickener is additionally added.

The viscosity of the cleaning agent according to the invention can be determined using customary standard methods (e.g. Brookfield viscometer RVD-VII at 20 rpm and 20°C, spindle 3). Preferred liquid to gelatinous cleaning agents can have viscosities of 20 to 4000 mPa, values between 40 and 2000 mPa being preferred.

20

Suitable thickeners are inorganic or polymeric organic compounds. Mixtures of a number of thickeners can also be employed.

Amongst the inorganic thickeners are counted, for example, polysilicic acids, clay minerals such as montmorillonites, zeolites, silicic acids (for example Sipernat, e.g. Sipernat 50S), layer silicates and bentonite. The organic thickeners originate from the groups consisting of the natural polymers, the modified natural polymers and the fully synthetic polymers. Polymers originating from nature, which are used as thickeners, are, for example, xanthan, agar agar, carrageenan, tragacanth, gum arabic, alginates, pectins, polyoses, guar gum, gellan gum, carob bean gum, starch, dextrans, gelatin and casein.

35

Modified natural substances originate especially from the group consisting of the modified starches and

celluloses; carboxymethylcellulose, hydroxyethylcellulose and hydroxypropylcellulose as well as methylhydroxyethylcellulose may be mentioned by way of example here.

5

If the cleaning agent is present in solid particulate form, the bulk average particle size (D50) is preferably 50 to 800 μm , more preferably 100 to 600 μm , in particular 150 to 450 μm . The particle size is
10 determined here as described above. Likewise, it is preferred that the cleaning agent according to the invention in particulate form has a "Hausner factor" of 1.03 to 1.3, more preferably of 1.04 to 1.20 and in particular of 1.04 to 1.15. "Hausner factor" is
15 understood here as meaning the ratio of compacted density or tamped density to bulk density. An appropriate particle size and an appropriate Hausner factor lead, for example, to an advantageous dissolving behavior and correspondingly to a better cleaning
20 result. (Information about the "Hausner factor" can be found, for example, in: "Arzneiformenlehre II, Arbeitsanleitung zum Praktikum; Pharmazeutische Technologie", Eberhard Karls University, Tübingen, Germany.)

25

The above details indicate the possible constituents of the cleaning agent according to the invention. The individual constituents can basically be used in the context of the indicated quantitative ratios in any
30 desired combination and on a broad basis for the development of effective cleaning agents. The preferred ranges for a constituent can preferably especially be combined with the preferred ranges of another constituent.

35

According to the present invention, the use of carbamide (urea) alone (100%) exhibits a surprisingly good cleaning power and a surprisingly good shine for glasses and cutlery.

The cleaning efficacy of carbamide is markedly increased by the addition of electrolytes. The use of neutral salts such as sodium sulfate and/or sodium chloride or the use of trisodium citrate and/or the use of a basic buffer mixture consisting of sodium carbonate and sodium bicarbonate is especially advantageous.

10 The addition of surfactants increases the cleaning activity, in particular with respect to an increased removal of fat and oil.

The addition of, for example, 1 to 2% enzymes (especially of enzymes having a high hydrolase activity at pH 8 to 10 and at 40 to 50°C) increases the cleaning power further. Of the commercially available enzymes (manufacturer: NOVOZYMES) were enzyme preparations that have amylase, lipase and protease activity, which are bound to a carrier, in particular in the alkaline cleaning of milking installations (see above).

The cleaning agents according to the invention can contain bleaching agents. Preferably, these cleaning agents contain up to 5% by weight of the bleaching agent, for example of an oxygen-based bleaching agent, for example sodium persulfate or sodium percarbonate. The cleaning agents described herein can preferably contain 0.01 to 5% by weight of a bleaching agent, more preferably 0.01 to 2% by weight, especially 0.01 to 1% by weight of a bleaching agent.

Furthermore, the cleaning agents described in the present invention can contain a disinfectant. The cleaning agents according to the invention (especially the cleaning agents for a milking installation) can contain up to 5% by weight of a disinfectant, for example of a disinfectant such as sodium persulfate or sodium percarbonate. Preferably, the cleaning agents

described herein can contain 0.01 to 5% by weight of a bleaching agent, more preferably 0.01 to 2% by weight, especially 0.01 to 1% by weight of a bleaching agent.

5 As was mentioned above, a cleaning agent according to the invention can be used as a solution, powder, concentrate, granules, pellets or gel. The solution or the gel can be used as such; the powder, concentrate, pellet and also the gel can be dissolved or diluted
10 with water, either manually or using a suitable metering or mixing apparatus. Use in sachets is particularly advantageous in individual cases.

It is particularly preferred that the cleaning agents
15 are provided as a powder, concentrate, granules or pellet, as its/their transport is extremely economical. The gels can be provided in any desired container, especially in a cartridge or a set of two or more cartridges. Thus a set of two cartridges can be
20 provided, one cartridge containing a gel of an acidic cleaning agent according to the invention, and the other cartridge containing a gel of a basic cleaning agent according to the invention, both cartridges optionally containing further ingredients. Moreover,
25 the carbamide cleaning agent can consist of a kit or of a composition, in which the specific constituents are specifically matched.

A preferred cleaning agent, in particular an alkaline
30 cleaning agent for the cleaning of surfaces, contains the following constituents:

carbamide	10 - 70% by weight;
nonionic surfactant	up to 10% by weight (e.g. 0.1 35 to 10% by weight);
sodium carbonate	1 - 25% by weight;
sodium bicarbonate	1 - 50% by weight;
complexing agent (preferably citrate	

	(e.g. trisodium citrate),	
	Trilon M and/or	
	Sokalan CP 5)	1 - 30% by weight;
	protease	up to 5% by weight;
5	lipase	up to 5% by weight;
	amylase	up to 5% by weight;
	corrosion inhibitor	up to 5% by weight;
	(e.g. phosphonate such	
	as, for example,	
10	Bayhibit S)	
	colorant	up to 5% by weight;
	scale inhibitor	up to 5% by weight;
	(e.g. polycarboxylate	
	such as Sokalan CP 5)	
15	fragrance	up to 5% by weight;
	bleaching agent	up to 5% by weight (e.g.
	(especially oxygen-	0.01 to 5% by weight);
	based)	
	silica (e.g. silicic	
20	acid)	up to 5% by weight and
	anionic surfactant	up to 5% by weight.

A further preferred cleaning agent, in particular an
alkaline cleaning agent for the cleaning of surfaces,
25 contains the following constituents:

	carbamide	10 - 70% by weight;
	surfactant(s)	up to 10% by weight (e.g. 0.1
		to 10% by weight);
30	sodium carbonate	1 - 25% by weight;
	sodium bicarbonate	1 - 50% by weight;
	complexing agent	
	(preferably citrate	
	(e.g. trisodium citrate),	
35	Trilon M and/or	
	Sokalan CP 5)	1 - 30% by weight;
	enzyme(s)	up to 5% by weight;
	corrosion inhibitor	up to 5% by weight;
	(e.g. phosphonate such	

	as Bayhibit S)	
	colorant	up to 5% by weight;
	scale inhibitor	up to 5% by weight;
	(e.g. polycarboxylate	
5	such as Sokalan CP 5)	
	fragrance	up to 5% by weight;
	bleaching agent	up to 5% by weight (e.g. 0.01
	(especially oxygen-	to 5% by weight)
	based)	
10	silica (e.g. silicic	
	acid)	up to 5% by weight.

A moreover preferred cleaning agent, in particular an
alkaline cleaning agent for the cleaning of surfaces,
15 contains the following constituents:

	carbamide	10 - 70% by weight;
	surfactant(s)	up to 10% by weight (e.g. 0.1
		to 10% by weight);
20	sodium carbonate	1 - 25% by weight;
	sodium bicarbonate	1 - 50% by weight;
	complexing agent	
	(preferably citrate	
	(e.g. trisodium citrate),	
25	Trilon M and/or	
	Sokalan CP 5)	1 - 30% by weight;
	protease	up to 5% by weight;
	lipase	up to 5% by weight;
	amylase	up to 5% by weight;
30	corrosion inhibitor	up to 5% by weight;
	(e.g. phosphonate such	
	as Bayhibit S)	
	colorant	up to 5% by weight;
	scale inhibitor	up to 5% by weight;
35	(e.g. polycarboxylate	
	such as Sokalan CP 5)	
	fragrance	up to 5% by weight;
	bleaching agent	up to 5% by weight (e.g. 0.01
	(especially oxygen-	to 5% by weight);

based)
silica (e.g. silicic acid) up to 5% by weight.

5 Milk is a very important constituent of human nutrition
and can be used as a basis for a great multiplicity of
products. If automatic milking is used, milking
installations and equipment and especially hoses and
pipes in such installations and equipment must be
10 thoroughly cleaned. This customarily takes place by
alternately using cleaning agents that contain strongly
acidic components, such as phosphoric acid or peracetic
acid, and strongly basic compounds, such as sodium or
potassium hydroxide. Peracetic acid is classified as
15 corrosive and has a pungent odor. Moreover, to remove
all types of bacteria disinfectants must be used that
are chlorine- or oxygen-based. Such systems are to a
great extent aggressive and must be handled and
transported with the utmost care by experienced
20 personnel. Moreover, they are corrosive to a great
extent and their repeated use can attack seals and
connecting pieces of the milking equipment and
transport vessels, whereby the lifespan of the
equipment is shortened. After the initial cleaning
25 step, the equipment, hoses, pipes and vessels must be
thoroughly rinsed to avoid contamination of the milk
with aggressive hazardous chemicals. Moreover, the
discarded cleaning liquids are to a great extent
harmful to the environment, especially if they are not
30 treated according to the regulations.

Therefore one object of the present invention also
consists in the provision of a cleaning agent that can
avoid the abovementioned disadvantages, especially the
35 use of strong, aggressive chemicals, moreover is
environmentally tolerable without an extensive and
expensive workup of the cleaning fluid that is to be
discharged being necessary, and that is biodegradable.

The cleaning agent according to the present invention is based on carbamide, which is completely biodegradable and completely environmentally tolerable. Moreover, the milking installations and containers are
5 not attacked by the cleaning agent.

A cleaning agent according to all embodiments of the present invention, especially for the cleaning of milking installations and equipment, can comprise
10 acidic constituents. A further cleaning agent according to all embodiments of the present invention, especially for the cleaning of milking installations and equipment, can comprise basic constituents. These cleaning agents can be employed in an alternating
15 manner. In the cleaning of milking installations and equipment, the acidic cleaning agent will remove minerals and galalith, whereas the basic cleaning agent will remove fatty and oily deposits.

20 The cleaning agent(s) according to the invention can be provided in any desired packing and amount in all embodiments of the present invention, however it is preferred to provide the cleaning agent(s) in a packing and/or an amount that is suitable for the specific
25 purpose. Thus, a kit of two cartridges can be provided, one cartridge containing a suitable amount of an acidic gel for the cleaning of a milking system of a specific size or of a specific model, and the other cartridge containing a suitable amount of a basic gel for the
30 cleaning of the milking system.

Moreover, the basic and/or the acidic cleaning agent, especially the basic cleaning agent, can comprise one or more disinfectants, this in particular being in
35 connection with the cleaning of milking installations (see above), but also with respect to the following specific embodiments.

A preferred cleaning agent, in particular an alkaline cleaning agent for the cleaning of milking installations and milking equipment or hoses or pipes, etc. of milking installations or equipment, contains
 5 the following constituents:

	carbamide	10 - 70% by weight;
	nonionic surfactant	up to 5% by weight (e.g. 0.1 to 5% by 10 weight);
	sodium carbonate	1 - 25% by weight;
	sodium bicarbonate	1 - 50% by weight;
	complexing agent (preferably citrate 15 (e.g. trisodium citrate), Trilon M and/or Sokalan CP 5)	1 - 30% by weight;
	protease	up to 5% by weight;
	lipase	up to 5% by weight;
20	amylase	up to 5% by weight;
	corrosion inhibitor (e.g. phosphonate such as, for example, Bayhibit S)	up to 5% by weight;
25	colorant	up to 5% by weight;
	scale inhibitor (e.g. polycarboxylate such as Sokalan CP 5)	up to 5% by weight;
	fragrance	up to 5% by weight;
30	bleaching agent	up to 5% by weight (e.g. 0.01 to 5% by weight); (or disinfectants, especially oxygen-based)
	silica (e.g. silicic 35 acid)	up to 5% by weight and
	anionic surfactant	up to 5% by weight.

A further preferred cleaning agent, in particular an alkaline cleaning agent for the cleaning of milking

installations and milking equipment or hoses or pipes, etc. of milking installations and equipment, contains the following constituents:

5	carbamide	10 - 70% by weight;
	surfactant(s)	up to 10% by weight (e.g. 0.1 to 10% by weight);
	sodium carbonate	1 - 25% by weight;
	sodium bicarbonate	1 - 50% by weight;
10	complexing agent (preferably citrate (e.g. trisodium citrate), Trilon M and/or Sokalan CP 5)	1 - 30% by weight;
15	enzyme(s)	up to 5% by weight;
	corrosion inhibitor (e.g. phosphonate, such as Bayhibit S)	up to 5% by weight;
	colorant	up to 5% by weight;
20	scale inhibitor (e.g. polycarboxylate, such as Sokalan CP 5)	up to 5% by weight;
	fragrance	up to 5% by weight;
	bleaching agent	up to 5% by weight (e.g. 0.01 to 5% by weight);
25	(or disinfectant, especially oxygen-based)	
	silica (e.g. silicic acid)	up to 5% by weight.

30

A moreover preferred cleaning agent, in particular an alkaline cleaning agent for the cleaning of milking installations or milking equipment or hoses or pipes, etc. of milking installations and equipment, contains

35 the following constituents:

	carbamide	10 - 70% by weight;
	surfactant(s)	up to 10% by weight (e.g. 0.1 to 10% by weight);

	sodium carbonate	1 - 25% by weight;
	sodium bicarbonate	1 - 50% by weight;
	complexing agent (preferably citrate	
5	(e.g. trisodium citrate), Trilon M and/or Sokalan CP 5)	1 - 30% by weight;
	protease	up to 5% by weight;
	lipase	up to 5% by weight;
10	amylase	up to 5% by weight;
	corrosion inhibitor (e.g. phosphonate, such as Bayhibit S)	up to 5% by weight;
	colorant	up to 5% by weight;
15	scale inhibitor (e.g. polycarboxylate, such as Sokalan CP 5)	up to 5% by weight;
	fragrance	up to 5% by weight;
	bleaching agent	up to 5% by weight (e.g. 0.01
20		to 5% by weight);
	(or disinfectant, especially oxygen-based)	
	silica (e.g. silicic acid)	up to 5% by weight.

25

A further preferred cleaning agent, in particular an acidic cleaning agent for the cleaning of milking installations or milking equipment, or hoses or pipes, etc. of milking installations or equipment, contains

30 the following constituents:

	carbamide	10 - 80% by weight;
	amidosulfonic acid	1 - 10% by weight;
	citric acid (preferably	
35	anhydrous)	1 - 20% by weight;
	sodium sulfate (preferably anhydrous)	0 - 50% by weight;
	sodium citrate	0 - 50% by weight;
	anionic surfactant	up to 5% by weight;

nonionic surfactant up to 5% by weight;
 complexing agent (e.g.
 MGDA) up to 5% by weight;
 silica (e.g. silicic
 5 acid) up to 5% by weight;
 bleaching agent up to 1% by weight (e.g. 0.01
 to 1% by weight) and
 (or disinfectant,
 especially oxygen-based,
 10 e.g. sodium persulfate)
 fragrance up to 5% by weight.

Optionally, this cleaning agent can moreover contain
 the following constituents:

15 scale inhibitor (e.g.
 Sokalan) up to 5% by weight;
 corrosion inhibitor
 (e.g. Bayhibit) up to 5% by weight.

20 All cleaning agents that have been mentioned in this
 application as cleaning agents for the cleaning of
 milking installations or milking equipment or hoses or
 pipes, etc. of milking installations or equipment can
 25 also be employed for the cleaning of any desired
 equipment type in food production, such as a bottle
 filling apparatus for liquids or semiliquids,
 especially drinks, such as juices.

30 Accordingly, the present invention also provides such a
 cleaning agent for a bottle filling plant or a bottle
 filling apparatus, especially for juices.

According to the present invention, a cleaning agent is
 35 also provided, which are employed for the cleaning of
 any desired type of surface, such as internal surfaces,
 external surfaces, terraces, facades, tunnel walls,
 road signs, longitudinal beams, noise barriers that are
 not covered with plants etc. The soiling of internal

- surfaces is primarily a hygiene problem, if preservation and care of surfaces are also of importance. Common dust indoors can contain organic components, such as bacteria, pollen, spores, etc.
- 5 Moreover, external surfaces, which can be soiled with algae, lichen, moss, plant seeds, pollen, dust and dirt (especially dirt that contains silicate), must be cleaned to preserve and to maintain them.
- 10 There are a large number of cleaning agents that are commercially available and that contain acidic or basic constituents according to their intended use, of which many cannot be regarded as environmentally friendly. If external surfaces are cleaned, attention must moreover
- 15 be paid that no plants, etc. are damaged by the cleaning agent, which, as was mentioned above, to a great extent can be basic or acidic. Moreover, the discharged cleaning fluids are harmful to a great extent for the environment, especially if they are not
- 20 treated according to the regulations. Thus, there is, in turn, a problem with respect to environmentally friendly disposal of the used cleaning fluid.

When stones or ceramic (such as tiling in tunnels, train or underground railway tunnels, external surfaces of buildings) are to be cleaned, cleaning agents for stone surfaces or facades can be used. Such cleaning agents must in general be adapted to be employed in high-pressure or steam cleaning equipment. Moreover,

30 the cleaning agents should not have any unpleasant odor and should be fireproof.

All these objects are achieved and all these disadvantages are overcome by a surface cleaning agent according to the present invention. The cleaning agent

35 can be adapted to its specific purpose, that is, to the specific surface to be treated. Accordingly, if acid-sensitive surfaces, such as lime-containing surfaces, are to be cleaned, a neutral or (slightly) basic

cleaning agent, for example, can be used. If base-sensitive surfaces are to be cleaned, a neutral or (slightly) acidic cleaning agent can be used. Moreover, plants, etc. that cover the surfaces can be removed
5 using acidic cleaning agents.

The external surfaces of buildings, such as brick, concrete, aggregate concrete, plaster, sandstone, natural stone, tiling, marble, etc., to be cleaned are
10 often contaminated with algae and fungi.

According to the nature of the surface to be cleaned, the carbamide cleaning agent can consist of a kit or a composition, in which the specific constituents are
15 specifically adapted. It is of course preferable to provide a cleaning agent that can be sprayed onto the object or the surface that is to be cleaned.

Moreover, the cleaning agent of the present invention
20 can be employed for cleaning surfaces of solar or photovoltaic panels. Such panels - contrary to popular belief - are not cleaned by rain and must be regularly cleaned to maintain their efficiency. The panels can be contaminated with algae, lichen, moss, plant seeds,
25 pollen, dust and dirt (especially dirt that contains silicate).

A further preferred cleaning agent, in particular an acidic cleaning agent for cleaning surfaces, contains
30 the following constituents:

carbamide	10 - 80% by weight;
amidosulfonic acid	1 - 10% by weight;
citric acid (preferably	
35 anhydrous)	1 - 20% by weight;
sodium sulfate (preferably	
anhydrous)	0 - 50% by weight;
sodium citrate	0 - 50% by weight;
anionic surfactant	up to 5% by weight;

nonionic surfactant up to 5% by weight;
 complexing agent (e.g.
 MGDA) up to 5% by weight;
 silica (e.g. silicic
 5 acid) up to 5% by weight;
 bleaching agent up to 1% by weight
 (especially oxygen-
 based, (e.g. 0.01 to 1% by weight)
 and, for example, sodium
 10 persulfate)
 fragrance up to 5% by weight.

This cleaning agent can optionally moreover comprise
 the following constituents:

15 scale inhibitor (e.g.
 Sokalan) up to 5% by weight;
 corrosion inhibitor
 (e.g. Bayhibit) up to 5% by weight.

20 According to the present invention, a cleaning agent
 (cleaning agents) is/are also provided that can be used
 for the cleaning of any desired vehicle type, such as
 motor vehicles, trains, aircraft and ships, especially
 25 for the external surfaces of the vehicles. The cleaning
 agent(s) can be employed in automatic or semiautomatic
 washing device systems.

30 The dirt (contamination) of the vehicle often comprises
 road dust, dust in general (e.g. dirt that contains
 silicate), but also organic material such as insects,
 algae, lichen, moss, plant seeds, pollen and,
 especially in Europe, asphalt.

35 Owing to the complex and demanding cleaning of the
 vehicles, common cleaning agents often contain cleaning
 agents based on sodium hydroxide with a pH of 14.
 Additionally, such cleaning agents often contain NTA
 (nitrilotriacetic acid) and/or EDTA (ethylenedini-

trilotetraacetic acid), which should be avoided for environmental reasons. However, an acidic cleaning agent should not be used, as it can cause corrosion of metallic surfaces, etc.

5

Cleaning is customarily carried out using the following steps: removal of (parts of) insects, removal of iron (especially of framework or rims) and removal of residual dirt and dust.

10

There is again a problem with respect to environmentally friendly disposal of the used cleaning fluid.

15

The present invention provides a cleaning agent that overcomes the abovementioned problems of the prior art. The cleaning agent is based on carbamide. According to the object to be cleaned, the carbamide cleaning agent can consist, for example, of a kit or a composition that optionally comprises additional constituents, the specific components being specifically adapted. It is of course preferred to provide a cleaning agent/system that can be sprayed onto the object to be cleaned or the surface to be cleaned.

20

A preferred cleaning agent, in particular for the cleaning of vehicles, for example cars, contains the following components:

25

30	carbamide	10 - 70% by weight;
	surfactant(s)	up to 15% by weight (e.g. 0.1 to 15% by weight);
	sodium carbonate	up to 25% by weight (e.g. 0.1 to 25% by weight);
35	sodium bicarbonate	up to 50% by weight (e.g. 0.1 to 50% by weight);
	complexing agent	
	(preferably citrate	
	(e.g. trisodium	

citrate), MGDA or
sodium salt thereof
(e.g. Trilon M and/or
polycarboxylate, such
5 as e.g. Sokalan CP 5) up to 25% by weight (e.g. 0.1
to 25% by weight);
fragrance up to 1% by weight (e.g. 0.001
to 1% by weight);
silica (e.g. silicic
10 acid) up to 1% by weight (e.g. 0.001
to 1% by weight)
and
gelling agent up to 1% by weight (e.g. 0.001
to 1% by weight).
15

A further preferred cleaning agent, in particular for
the cleaning of vehicles, for example cars, contains
the following constituents:

20 carbamide 10 - 70% by weight;
surfactant(s) up to 15% by weight (e.g. 0.1
to 15% by weight);
sodium carbonate up to 25% by weight (e.g. 0.1
to 25% by weight);
25 sodium bicarbonate up to 50% by weight (e.g. 0.1
to 50% by weight);
citrate (e.g. trisodium
citrate) up to 25% by weight (e.g. 0.1
to 25% by weight);
30 phosphonate(s) up to 1% by weight (e.g. 0.01
to 1% by weight);
polycarboxylate(s) up to 5% by weight (e.g. 0.01
to 5% by weight);
complexing agent (e.g.
35 MGDA) up to 5% by weight (e.g. 0.01
to 5% by weight);
fragrance(s) up to 1% by weight (e.g. 0.001
to 1% by weight);
silica (e.g. silicic

acid) up to 1% by weight (e.g. 0.001
to 1% by weight)
and
gelling agent up to 1% by weight (e.g. 0.001
5 to 1% by weight).

A moreover preferred cleaning agent, in particular for
the cleaning of vehicles, for example cars, contains
the following constituents:

10 carbamide 10 - 70% by weight;
surfactant(s) up to 15% by weight (e.g. 0.1
to 15% by weight);
sodium carbonate up to 25% by weight (e.g. 0.1
15 to 25% by weight);
sodium bicarbonate up to 50% by weight (e.g. 0.1
to 50% by weight);
citrate (e.g. trisodium
citrate) up to 25% by weight (e.g. 0.1
20 to 25% by weight);
phosphonate(s) up to 1% by weight (e.g. 0.01
to 1% by weight);
polycarboxylate(s) up to 5% by weight (e.g. 0.01
to 5% by weight);
25 MGDA up to 5% by weight (e.g. 0.01
to 5% by weight);
fragrance(s) up to 1% by weight (e.g. 0.001
to 1% by weight);
silica (e.g. silicic
30 acid) up to 1% by weight (e.g. 0.001
to 1% by weight).

A further preferred cleaning agent, in particular for
the cleaning of vehicles, for example cars, contains
35 the following constituents:

carbamide 10 - 70% by weight;
nonionic surfactant up to 5% by weight (e.g. 0.1
to 5% by weight);

	amphoteric surfactant	up to 15% by weight (e.g. 0.1 to 15% by weight);
	anionic surfactant	up to 10% by weight (e.g. 0.1 to 10% by weight);
5	sodium carbonate	up to 25% by weight (e.g. 0.1 to 25% by weight);
	sodium bicarbonate	up to 50% by weight (e.g. 0.1 to 50% by weight);
	citrate (e.g. trisodium	
10	citrate)	up to 25% by weight (e.g. 0.1 to 25% by weight);
	phosphonate	up to 1% by weight (e.g. 0.01 to 1% by weight);
	polycarboxylate	up to 5% by weight (e.g. 0.01 to 5% by weight);
15	MGDA	up to 5% by weight (e.g. 0.01 to 5% by weight);
	fragrance	up to 1% by weight (e.g. 0.001 to 1% by weight);
20	silica (e.g. silicic acid)	up to 1% by weight (e.g. 0.001 to 1% by weight).

25 This cleaning agent can optionally contain up to 1% by weight (e.g. 0.001 to 1% by weight) of one or more gelling agents.

30 In more recent investigations, it was found that cleaning agents for dentures and dental prostheses are not satisfactory, as far as their cleaning and disinfection actions are concerned.

35 A further object of the present invention therefore consisted in providing a cleaning agent for dentures and dental prostheses that has an efficacy that is at least as good as or better than that of cleaning agents of the prior art, and which is environmentally compatible.

This object was achieved according to the invention by the provision of a cleaning agent for dentures and dental prostheses based on carbamide.

5 It is particularly preferred to provide the cleaning agent as a powder, concentrate, granules or pellet, as its transport is extremely economical. The gels can be provided in any suitable container, especially in a cartridge.

10

The cleaning agent(s) according to the invention can be provided in any desired packing and amount; it is preferred, however, to provide the cleaning agent(s) in a pack and/or an amount that is suitable for the
15 specific purpose.

Moreover, the cleaning agent can comprise one or more disinfectants.

20 According to its use, the carbamide cleaning agent can consist of a kit or a composition, in which the specific (additional) constituents are specifically adapted.

25 A further preferred cleaning agent, in particular for the cleaning of dental prostheses, contains the following constituents:

	carbamide	40 - 80% by weight;
30	bleaching agent	up to 20% by weight (e.g. 0.1 to 20% by weight);
	(especially oxygen-based, e.g. sodium percarbonate)	
	sodium bicarbonate	1 to 25% by weight;
35	sodium sulfate	up to 20% by weight (e.g. 0.1 to 20% by weight);
	complexing agent	up to 10% by weight (e.g. 0.1 to 10% by weight);
	(especially citrate,	

e.g. trisodium citrate)
 polyalcohol (e.g.
 sorbitol or xylitol) up to 5% by weight (e.g. 0.1
 to 5% by weight);
 5 citric acid (preferably 1 - 10% by weight;
 anhydrous)
 anionic surfactant up to 5% by weight (e.g. 0.1
 to 5% by weight);
 activator (e.g. TAED) up to 5% by weight (e.g. 0.1
 10 to 5% by weight).

A further preferred cleaning agent, in particular for
 the cleaning of dental prostheses, contains the
 following constituents:

15 carbamide 40 - 80% by weight;
 citric acid 1 - 25% by weight;
 (preferably anhydrous)
 sodium bicarbonate 1 - 20% by weight;
 20 anionic surfactant up to 5% by weight (e.g. 0.1
 to 5% by weight);
 complexing agent up to 10% by weight (e.g. 0.1
 to 10% by weight);
 sodium sulfate up to 10% by weight (e.g. 0.1
 25 to 20% by weight);
 polyalcohol (e.g.
 sorbitol or xylitol) up to 5% by weight (e.g. 0.1
 to 5% by weight).

30 In particular, a milking installation is cleaned using
 two, at least one alkaline and at least one acidic,
 cleaning agents, preferably alternately.

The invention also relates to an enzyme-containing
 35 cleaning agent for closed systems, in particular an
 enzyme-containing cleaning agent for cleaning,
 sanitizing and/or disinfecting, containing 5 to 99.9%
 by weight, preferably 10 to 95% by weight, more
 preferably 10 to 90% by weight, even more preferably 20

to 80% by weight, particularly preferably 25 to 75% by weight, extremely particularly preferably 20 to 70% by weight and in particular 20 to 60% by weight of carbamide or derivatives thereof, based on the total weight of the enzyme-containing cleaning agent for closed systems, of the enzyme-free dishwasher detergent or of the enzyme-free sanitary cleaner.

In summary, it is to be stated that the cleaning agent according to the invention on account of the unexpectedly advantageous properties is a versatile source for numerous application purposes. The cleaning agent according to the invention has an excellent dissolving power and inclusion capacity for numerous substances. The main constituent of the cleaning agent according to the invention, as a neutral, toxicologically harmless natural substance, is very highly skin-compatible and rapidly biodegradable. It has been found that carbamide, in particular in cleaning agents for closed systems (in particular in cleaning agents for cleaning, sanitizing and/or disinfecting) is an unexpectedly good solubilizer. The cleaning agent according to the invention, in spite of the high carbamide amount, is unexpectedly compatible with the surfaces to be cleaned, for example cutlery, in particular with glasses. No undesired etching effect at all is to be discerned on the surfaces.

On the basis of the toxicologically and ecologically widely acceptable carbamide, the combination with further abovementioned, biologically likewise acceptable additives also allows, e.g., formulations with the claim "bio-cleaner".

The invention will be illustrated on the basis of the following examples.

EXAMPLES:

(All values in the examples are indicated in % by weight. The brand names or trade names used have the meaning apparent from Annex I below.)

- 5 Cleaning agent for use in food processing (e.g. in a bottle filling plant)

	carbamide	45.0
	Genapol EP 2584	2.0
10	Lutensol AT 25	1.0
	sodium carbonate	14.5
	sodium bicarbonate	20.96
	trisodium citrate	9.0
	Savinase 6.0 T	0.5
15	Lipolase 100 T	0.4
	Termamyl 120 T	1.6
	Bayhibit S	0.34
	TAED green	0.8
	Sokalan CT 5	1.0
20	Trilon M granules	2.5
	lemon oil	0.01
	sodium persulfate	0.09
	Sipernat 50S	0.2
	Lutensit AS 2230	0.1

25

Acidic cleaning agent for milking installations:

	carbamide	47.91
	amidosulfonic acid	5.0
30	anhydrous citric acid	14.0
	anhydrous sodium sulfate	30.0
	Plurafac LF 431	0.8
	Lutensol AT 25	1.0
	Trilon M	1.0
35	Sipernat 50 S	0.2
	sodium persulfate	0.09

Alkaline cleaning agent for surfaces

	carbamide	45.0
	Genapol EP 2584	2.0
	Lutensol AT 25	3.0
	sodium carbonate	14.5
5	sodium bicarbonate	17.96
	trisodium citrate	9.0
	Savinase 6.0 T	0.5
	Lipolase 100 T	0.4
	Termamyl 120 T	1.6
10	Bayhibit S	0.34
	TAED green	0.8
	Sokalan CP 5	1.0
	Trilon M granules	2.5
	lemon oil	0.01
15	sodium persulfate	0.09
	Sipernat 50S	0.2
	Lutensit AS 2230	0.1

20 Acidic cleaning agent for surfaces

	carbamide	47.71
	amidosulfonic acid	5.0
	anhydrous citric acid	14.0
25	anhydrous sodium sulfate	30.0
	Plurafac LF 431 (403)	0.8
	Lutensol AT 25	1.0
	Trilon M	1.0
	Sipernat 50 S	0.4
30	sodium persulfate	0.09

Cleaning agent for cleaning cars

35	carbamide	45.0
	Genapol EP 2584	1.0
	Lutensol AT 25	3.5
	amphoteric surfactant	4.0
	anionic surfactant	3.0

	sodium carbonate	14.5
	sodium bicarbonate	16.55
	trisodium citrate	9.0
	Bayhibit S	0.19
5	Sokalan CP 5	0.50
	Trilon M granules	2.5
	perfume oil, lemon	0.01
	Sipernat 50 S	0.2
	gelling agent, such as	
10	Carbopol 940, Tylose C 1000 P,	
	Tylose M 2000	0.05

* * *

15 The following basic formulations are additionally to be assigned to the invention, taking into consideration the above embodiments for preferred features:

20 1. Cleaning agent for cleaning vehicles, containing the following constituents:

	carbamide	10 - 70% by weight;
	surfactant(s)	0.1 to 15% by weight;
	sodium carbonate	0.1 - 25% by weight;
25	sodium bicarbonate	0.1 - 50% by weight;
	citrate	0.1 to 25% by weight;
	phosphonate(s)	up to 1% by weight;
	polycarboxylate(s)	up to 5% by weight;
	MGDA	up to 5% by weight;
30	fragrance(s)	up to 1% by weight and
	silica	up to 1% by weight

2. Cleaning agent for cleaning surfaces, containing the constituents:

35	carbamide	10 - 80% by weight;
	amidosulfonic acid	
	(decalcifier)	1 - 10% by weight;
	citric acid	

	(decalcifier)	1 - 20% by weight;
	sodium sulfate	0 - 50% by weight;
	sodium citrate	0 - 50% by weight;
	anionic surfactant	up to 5% by weight;
5	nonionic surfactant	up to 5% by weight;
	complexing agent	up to 5% by weight;
	silica	up to 5% by weight;
	bleaching agent	up to 1% by weight and
	fragrance	up to 5% by weight.
10	3. Cleaning agent for cleaning surfaces, containing the following constituents:	
	carbamide	10 - 70% by weight;
15	surfactant(s)	up to 10% by weight;
	sodium carbonate	1 - 25% by weight;
	sodium bicarbonate	1 - 50% by weight;
	complexing agent	1 - 30% by weight;
	enzyme(s)	up to 5% by weight;
20	corrosion inhibitor	up to 5% by weight;
	colorant	up to 5% by weight;
	scale inhibitor	up to 5% by weight;
	fragrance	up to 5% by weight;
	bleaching agent	up to 5% by weight;
25	silica	up to 5% by weight.

4. Cleaning agent for cleaning milking installations, containing the following constituents:

30	carbamide	10 - 80% by weight;
	amidosulfonic acid	1 - 10% by weight;
	citric acid	1 - 20% by weight;
	sodium sulfate	0 - 50% by weight;
	sodium citrate	0 - 50% by weight;
35	anionic surfactant	up to 5% by weight;
	nonionic surfactant	up to 5% by weight;
	complexing agent	up to 5% by weight;
	silica	up to 5% by weight;
	bleaching agent	up to 1% by weight and

fragrance up to 5% by weight.

5. Cleaning agent for cleaning milking installations,
containing the following constituents:

5	carbamide	10 - 70% by weight;
	surfactants(s)	up to 10% by weight,
	sodium carbonate	1 - 25% by weight;
	sodium bicarbonate	1 - 50% by weight;
10	complexing agent	1 - 30% by weight;
	enzyme(s)	up to 5% by weight;
	corrosion inhibitor	up to 5% by weight;
	colorant	up to 5% by weight;
	scale inhibitor	up to 5% by weight;
15	fragrance	up to 5% by weight;
	bleaching agent	up to 5% by weight;
	silica	up to 5% by weight.

6. Cleaning agent for cleaning dental prostheses,
20 containing the following constituents:

	carbamide	40 - 80% by weight;
	citric acid	1 - 25% by weight;
	sodium bicarbonate	1 - 20% by weight;
25	anionic surfactant	up to 5% by weight;
	complexing agent	up to 10% by weight;
	sodium sulfate	up to 10% by weight;
	polyalcohol (e.g.	
	sorbitol or xylitol)	up to 5% by weight.

30

* * *

5 **Brand names or trade names used with chemical description**

	<u>Brand name</u>	<u>Chemical description/function</u>
10	Bayhibit S	2-Phosphonobutane-1,2,4-tricarboxylic acid tetrasodium salt, corrosion inhibitor
	Carbopol 940	crosslinked polyacrylate polymer, complexing agent
	Genapol EP 2584	nonionic surfactant
15	Lipolase 100 T	lipase, enzyme
	Lutensit AS 2230	alkyl ether sulfate, ionic surfactant
	Lutensol AT 25	polymer; isotridecanol ethoxylate/nonionic surfactant
20	Plurafac LF 431	polymer; fatty alcohol alkoxyate/nonionic surfactant
	Savinase 6.0 T	protease, enzyme
	Sipernat 50S	lubricant
	Sokalan CP 5	inhibitor
25	Termamyl 120 T	amylase, enzyme
	Trilon M	complexing agent, aminocarboxylic acid salt
	Tylose C 1000 P	carboxymethylcellulose, thickener
30	Tylose M 2000	methylcellulose, thickener
	TAED	oxygen-based activator for bleaching agent

35

* * *

PATENT CLAIMS

1. A cleaning agent for cleaning surfaces of vehicles
5 of all types, of large external surfaces, in particular
of buildings, of plants in the food and tobacco and
alcohol industries, in particular of milking
installations, as well as of plants and equipment
having metallic, ceramic and/or plastic surfaces,
10 comprising
- (a) 10 to 90% of urea,
 - (b) 5 to 70% by weight of one or more
electrolytes,
 - (c) 0.1 to 35% by weight of one or more
15 surfactants and
 - (d) 0.01 to 20% by weight of one or more
complexing agents.
2. The cleaning agent as claimed in claim 1,
20 characterized in that it contains 10 to 70% by weight,
in particular 20 to 60% by weight, of urea.
3. The cleaning agent as claimed in claim 1 or 2,
characterized in that the electrolyte is present in the
25 form of alkali metal and/or alkaline earth metal salts,
in particular in the form of sodium salts.
4. The cleaning agent as claimed in one of claims 1 to
3, characterized in that the complexing agent is
30 present in the form of nitrilotriacetate (NTA),
ethylenediamine triacetate (TED), ethylenediamine
tetraacetate (EDTA), methylglycine diacetate (MGDA), in
particular in the form of the sodium salts.
- 35 5. The cleaning agent as claimed in one of claims 1 to
4 for the cleaning of surfaces of motor vehicles of all
types, in particular of heavy goods vehicles, buses,
motor cars, motorcycles, bicycles, tractors, ships,
aircraft, these in particular having metallic and/or

plastic-based surfaces, here in particular paint-based, characterized in that it additionally contains a thickener, in particular in the form of carboxymethylcellulose, in particular in an amount from
5 0.001 to 3% by weight.

6. The cleaning agent as claimed in claim 5, characterized in that it contains anticorrosion agents, in particular in the form of a phosphonate, in
10 particular in an amount from 0.1 to 5% by weight.

7. The cleaning agent as claimed in claim 5 or 6, characterized in that it contains care agents, in particular in the form of silicone and/or wax
15 emulsions.

8. The cleaning agent as claimed in at least one of claims 1 to 7, characterized in that it contains an abrasive, in particular in the form of silicon dioxide,
20 in particular in an amount from 0.001 to 1% by weight.

9. The cleaning agent as claimed in at least one of claims 1 to 4 for the cleaning of external surfaces of all types, in particular of floor surfaces, roofs, wall
25 surfaces, path and terrace surfaces, and also solar surfaces and the like, characterized in that it contains decalcifiers and/or microbicides, in particular against algae, moss, fungi and/or lichens.

30 10. The cleaning agent as claimed in claim 9, characterized in that it contains decalcifiers, in particular in the form of amidosulfonic acid and/or citric acid.

35 11. The cleaning agent as claimed in claim 10, characterized in that the decalcifier is present in an amount of approximately 1 to 20% by weight, in particular approximately 5 to 15% by weight.

12. The cleaning agent as claimed in at least one of the preceding claims, characterized in that it contains silicon dioxide as an abrasive, in particular in an amount from 0.1 to 5% by weight.

5

13. The cleaning agent as claimed in claim 12, characterized in that the amount of silicon dioxide is 0.1 to 3% by weight.

10 14. The cleaning agent as claimed in at least one of the preceding claims, characterized in that in the case of the treatment of metallic surfaces of all types, in particular of iron, stainless steel, aluminum, magnesium, titanium, copper, zinc, tin, brass or having
15 chromed surfaces, in the treatment of milking installations and surgical equipment, it contains corrosion inhibitors, in particular in the form of a phosphonate.

20 15. The cleaning agent as claimed in claim 14, characterized in that contains corrosion inhibitors in an amount from 0.1 to 5% by weight, in particular in an amount from 0.3 to 3% by weight.

25 16. The cleaning agent as claimed in at least one of the preceding claims 1 to 15, characterized in that in the case of alkaline application contains bleaching agent, in particular in the form of a per compound.

30 17. The cleaning agent as claimed in claim 16, characterized in that the per compound is present as a persulfate and/or a percarbonate, in particular in the form of the sodium salt, in particular in an amount from 0.1 to 5% by weight.

35

18. The cleaning agent as claimed in claim 17, characterized in that the per compound is present in an amount from 0.1 to 3% by weight.

19. The cleaning agent as claimed in one of claims 16 to 18, characterized in that for adjusting the desired efficacy of the bleaching agent, a suitable activator is employed, in particular in the form of tetraacetylenediamine (TAED).

20. The cleaning agent as claimed in at least one of the preceding claims, characterized in that for the degradation of organic substances it contains enzymes, in particular in an amount from 0.1 to 5% by weight.

21. The cleaning agent as claimed in claim 20, characterized in that the amount of enzymes is 0.3 to 3% by weight.

22. The cleaning agent as claimed in at least one of the preceding claims, characterized in that in the case of use in an acidic medium it contains citric acid and/or amidosulfonic acid.

23. The cleaning agent as claimed in at least one of the preceding claims 1 to 4 for the cleaning of ceramic surfaces and/or plastic surfaces of dental prostheses, characterized in that it contains acids, in particular citric acid and alkali metal bicarbonate for gas evolution, in particular in an amount from 1 to 10% by weight, the surfaces of dental prostheses in particular being based on: plastics, bridges made of metal, on ceramics, on VMC (veneer metal ceramic) as well as on zirconium dioxide as a structure for full ceramic crowns and full ceramic bridges.

24. The cleaning agent as claimed in claim 23, characterized in that it contains a bleaching agent, in particular together with a relevant activator, in particular in the form of a per compound.

25. The cleaning agent as claimed in claim 23 or 24, characterized in that the per compound is a

percarbonate, in particular in the form of the sodium salt.

26. The cleaning agent as claimed in at least one of
5 claims 23 to 25, characterized in that it contains a stabilizer, in particular in the form of a sugar alcohol, in particular in the form of sorbitol.

27. The cleaning agent as claimed in at least one of
10 claims 1 to 4, and 23 to 26, characterized in that it contains an antimicrobial agent, in particular with efficacy against yeast fungi, streptococci, Escherichia and also against pseudomonads and Legionella.

28. The cleaning agent as claimed in at least one of
15 the preceding claims, characterized in that it serves for the treatment of kitchen equipment or kitchen machines, in particular of coffee machines, of hot water boilers, of egg boilers, of bottle warmers for
20 baby bottles and also of baby bottles and baby glasses, the features of the above claims being adapted to these uses.

29. The cleaning agent as claimed in at least one of
25 the preceding claims, characterized in that it is present in the form of particles, in particular in the form of a powder, in particular in the form of pressed articles or tablets or filled into sachets.

30. The cleaning agent as claimed in at least one of
30 the preceding claims, characterized in that it is contained in a set and with which the frame conditions designated in the above claims are set on use or before use, the urea in particular being separated from the
35 other components of the cleaning agent, in particular in a multichamber system.

31. The cleaning agent as claimed in at least one of the preceding claims in the case of the treatment of

surfaces of surgical equipment as well as surfaces of milking installations, the surfaces to be treated essentially being metallic, in particular based on iron, stainless steel, aluminum, magnesium, titanium, copper, zinc, tin, brass, and integrated sealing components, in particular of plastic, or integrated sight glasses of plastic or special glass.

* * *