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(54) CLEANING AGENT COMPOSITION, UNIT DOSE AND SYSTEM FOR HARD FLOOR AND ABOVE-FLOOR SURFACES

(57) Summary

The invention relates to a cleaning agent composition for cleaning hard floor and above-floor surfaces, wherein the cleaning agent composition comprises one of three specific composition groups, wherein said composition groups each comprise 2.5 - 3.5 % w/w of polyvinyl alcohol. A corresponding cleaning agent unit dose (1) for cleaning hard floor and above-floor surfaces comprises said cleaning agent composition. A pouch (2) is formed by the polyvinyl alcohol portion of said cleaning agent composition, wherein a filling (3) of the pouch (2) consists of the remainder of said cleaning agent composition. A corresponding cleaning agent system for cleaning hard floor and above-floor surfaces comprises said cleaning agent unit dose (1) and furthermore a pump spray bottle (9).

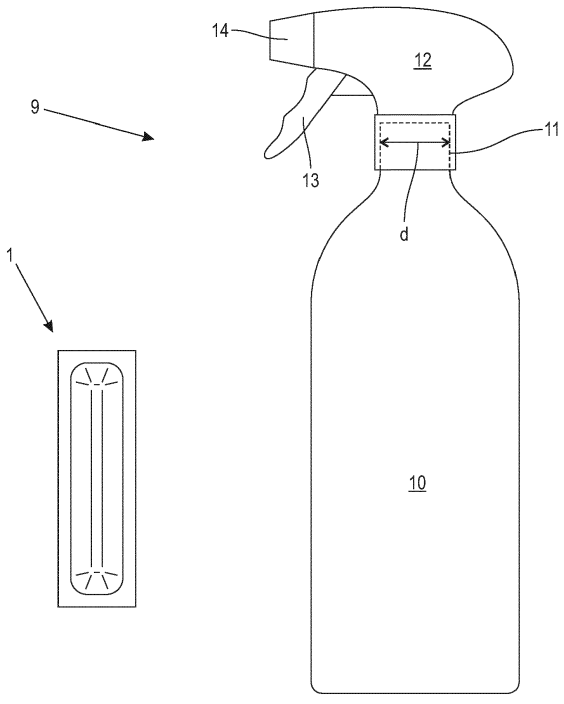

Fig. 1

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Description

[0001] The invention relates to a cleaning agent composition, a cleaning agent unit dose and a cleaning agent system for cleaning hard floor and above-floor surfaces.

[0002] Known preparations for manual washing and cleaning, even ones that are defined as "concentrated" by the authors, are water-based mixtures of anion and non-ionic surfactants and excipients which are packed into PET/PE/PP bottles.

[0003] The broad use of water as a surfactant carrier is characteristic of the known mixtures. Water, which constitutes over 90% of the mixture composition in the majority of cases, does not bring any added value to the cleaning proves; it is a redundant burden from the economic point of view. This causes high economic social costs related to the transport and storage of an unnecessary mass of goods, high emissions into the environment of hardly biodegradable packagings the form of PET/PE/PP bottles/canisters and the fact that consumers have no influence on the optimal detergent dosage.

[0004] Solutions concerning the production of highly concentrated detergents in the form of water soluble capsules are also known. For example, US 2016/0201017 A1 discloses water soluble packets containing concentrates of laundry detergent and fabric softener cleaning formulations.

[0005] A washing machine for washing textiles is loaded e.g. with one of the above mentioned water soluble packets containing concentrates of laundry detergents and so forth. The washing machine is connected to a fresh water supply, through which a predetermined amount of water is introduced. When coming into contact with said packet, the water dissolves the soluble foil package, thereby setting free the laundry detergent filling. Water and filling mix with each other and form a washing liquid, which cleans the fabric, and which is pumped away after use. For every use a new detergent package and a new volume of water is required. In principle the same applies to detergent packages for use in automatic dishwashers.

[0006] Besides the cleaning effect on fabrics or dishes one more requirement is paramount: chemical compatibility. In particular, the cleaning agents have to be compatible with the water soluble package foil. All chosen agents in their chosen mixture must not dissolve the package during storage and handling. Although a certain water contents is always present in the detergent mixture, the foil of the package must remain tight when stored in the supermarket shelf or in the household cabinet, even under moist atmospheric conditions. Once dissolved in the cleaning water, the dissolved foil material must not spoil the cleaning properties of the cleaning agents.

[0007] No such solutions are known in the field of products for washing and cleaning windows, floors, kitchens and bathrooms and so forth. This is due to a number of reasons. One reason is the difference in operating conditions. The above outlined washing machine or dishwasher scenario does not apply to the cleaning scenario of hard floor and above-floor surfaces. In room surface cleaning there is no such device for supplying the required amount of water and mixing it with a predetermined amount of cleaning agent. One other reason is that the chemical requirements are entirely different. A broad spectrum of ph values has to be covered to achieve the desired cleaning effect in grease (kitchen) or limescale (bathroom) environments. As a result, all known cleaning agents for cleaning hard floor and above-floor surfaces are based on the classic idea of proving a liquid with high water content, which can be readily poured on the surface and then rinsed away.

[0008] It is an object of the present invention to provide a cleaning agent composition with significantly reduced or even missing water content but regardless outstanding applicability for cleaning hard floor and above-floor surfaces.

[0009] This object is solved by the cleaning agent composition according to claim 1.

[0010] It is a further object of the invention to provide an easily applicable cleaning agent unit dose and/or a cleaning agent system for cleaning hard floor and above-floor surfaces, thereby saving packaging material, transport and storing effort, and yet having the required cleaning performance.

[0011] This object is solved by the cleaning agent unit dose according to claim 4 and the cleaning agent system according to claim 9.

[0012] According to the invention a cleaning agent composition for cleaning hard floor and above-floor surfaces is proposed, wherein the cleaning agent composition comprises one of the following three composition groups:

The first composition group of said three composition groups comprises

- 5 - 20 % w/w of ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt,
- 30 - 50 % w/w of ethyl alcohol,
- 20 - 50 % w/w of ethylene glycol butyl ether,
- 0.3 - 1 % w/w of either sodium salt of diethylenetriamine penta(methylene phosphonic acid) or alkanoloamine,
- 0.3 - 5 % w/w of water, and
- 2.5 - 3.5 % w/w of polyvinyl alcohol.

Said first composition group is either slightly acid having a ph ranging from 5 to 7 (the above sodium salt alternative),

and is preferably used for window cleaning, or is alkaline having a ph ranging from 7 to 9 (the above alkanoloamine alternative), and is preferably used for kitchen cleaning

The second composition group of said three composition groups comprises

- 15 - 20% w/w of ethoxylated alcohols C9-C11,
- 30 - 50 % w/w of 1-butoxypropan-2-ol,
- 20 - 50 % w/w of either lactic acid or acetic acid or propionic acid,
- 0.0 - 5 % w/w of water, and
- 2.5 - 3.5% w/w of polyvinyl alcohol,

Said second composition group is considerably acid having a ph ranging from 1 to 2, and is preferably used for bathroom cleaning.

The third composition group of said three composition groups comprises

- 30 - 55% w/w of ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt,
- 5 - 20% w/w of ethoxylated alcohols C9-C11,
- 5 - 20% w/w of ethoxylated alcohols C12-C14,
- 5 - 20 % w/w of ethoxylated sorbitan monolaurate,
- 5 - 10 % w/w of glycerin,
- 1 - 5 % w/w of propylene glycol,
- 1 - 5 % w/w of isopropyl alcohol,
- 0.3 -1 % w/w of sodium salt of diethylenetriamine penta(methylene phosphonic acid),
- 0.3 - 5 % w/w of water, and
- 2.5 - 3.5% w/w of polyvinyl alcohol.

Said third composition group is more or less neutral having a ph ranging from 6 to 8, and is preferably used for floor cleaning.

[0013] All three composition groups have in common, that they contain polyvinyl alcohol (PVA or PVOH) as part of the composition not as a potentially disturbing packaging ballast or remainder, but as an agent contributing to the cleaning process and complementing the other ingredients in their overall cleaning effect. All three composition groups were found to provide superior cleaning results in their respective above mentioned preferred environment.

[0014] Another common feature is the low water content of 5% w/w or less. In the following, such compositions are interchangeably called "super concentrate". The inventive super concentrates allow for a significant reduction of mass and volume to be transported and to be stored. Furthermore, the otherwise related amount of plastic packagings or containers is reduced to a minimum or even entirely eliminated.

[0015] An even further common feature is the chemical compatibility. None of the ingredients including the PVA or PVOH are in conflict with other ingredients. PVA or PVOH foils are not prematurely dissolved or disrupted, but remain structurally integer. The compositions are stable during storage, but mix well with water once in contact with that.

[0016] In a further aspect, the invention provides a cleaning agent unit dose for cleaning hard floor and above-floor surfaces, wherein the cleaning agent unit dose comprises said inventive cleaning agent composition, and wherein a pouch is formed by the polyvinyl alcohol portion of said cleaning agent composition, and wherein a filling of the pouch consists of the remainder of said cleaning agent composition.

[0017] Such pouches are easily transported and stored, and they are easily used by just dropping one of them into a predetermined amount of water. Once in contact with water, the pouch dissolves. It does not only set free its content, but becomes part of the entire mixture as a cleaning agent, thereby enhancing washing and cleaning.

[0018] In an even further aspect, the invention provides a cleaning agent system for cleaning hard floor and above-floor surfaces, wherein the cleaning agent system comprises the aforementioned cleaning agent unit dose, and wherein the cleaning agent system further comprises a pump spray bottle. A regular, manually operated pump spray bottle of preferably 500 ml to 750 ml volume may be easily filled with tap water, followed by the insertion of one of the aforementioned unit doses. The unit dose dissolves and mixes with the water to a readily usable cleaning liquid. Such liquid however, is not limited to one single application. It rather may be used over a number of days at different locations, until the content of the pump spray bottle is depleted. The pump spray bottle with not yet fully used contents may be set aside for quite a long time, since the inventive agent-water-mixture is stable and of superior quality even after long storage.

[0019] The invention is best suitable for cleaning hard surfaces in the kitchen, bathroom, glass surfaces, plastic surfaces, varnished surfaces, ceramic surfaces and metal surfaces, depending on the formula variant. The inventive

super concentrate dissolves in water after being shaken a few times, and there is no need to mix it additionally. It is advantageous if the mixture for cleaning hard floor and above-floor surfaces contains a highly concentrated surfactant in an anhydrous form with high washing and foaming properties. It further may be advantageous if the mixture for cleaning hard floor and above-floor surfaces contains a non-ionic surfactant from the group of ethoxylated fatty alcohols with high surface activity and a high moistening capability. Even further it may be advantageous if the mixture for cleaning hard floor and above-floor surfaces contains low-molecular organic acid ensuring an appropriate pH of the cleaning mixture and is characterized by high activity for dissolving scale and soap residues.

[0020] Further advantageous features may be:

- The mixture for cleaning hard floor and above-floor surfaces contains volatile water-miscible solvents.
- Water softeners from the group of sodium salts of diethylenetriamine penta(methylene phosphonic acid) are used in the mixture for cleaning hard floor and above-floor surfaces with a high ability to bind calcium and magnesium ions.
- The mixture for cleaning hard floor and above-floor surfaces contains one of alcanoloamines.
- The mixture for cleaning hard floor and above-floor surfaces contains up to 5% water.
- The modified polyvinyl alcohol polymer is soluble in cold water.

[0021] The following unexpected results were found:

- It turned out that the introduction of anionic surfactants in the form of monoisopropanolamine salts does not only ensure good cleaning properties and the absence of smudges on cleaned surfaces but it also guarantees the obtaining of a clear, stable product after the capsule is diluted in water.
- It turned out that the appropriate selection of components of the mixture for cleaning hard surfaces and the establishment of proper proportions allows for obtaining high quality super concentrates for washing various surfaces.
- It turned out that the appropriate selection of the components of the mixture for cleaning hard surfaces ensures their synergy with the employed PVA polymer.
- It turned out that the appropriate selection of the components of the mixture does not interact with the PVA film and ensures the stability of the product in the form of capsules.

[0022] In a preferred embodiment, the cleaning agent composition further comprises 0,03 - 0,15 % w/w of colorant. The colorant may be used to easily distinguish the above mentioned different compositions in order to make sure, that the right composition is applied to the desired cleaning environment.

[0023] The cleaning agent composition may further comprise 0,3 - 1,5 % w/w of fragrances, in particular a mixture of natural and synthetic oils. This does not only make the application more appealing, but may also help to indicate correct and sufficient distribution of the composition onto the to be cleaned surface.

[0024] The cleaning agent unit dose preferably has a mass in the range from 5 g to 30 g, and in particular in the range from 10 g to 20 g. This fits well to the above mentioned water volume of 500 ml to 750 ml, leading to readily and easily usable solution and mixture concentration.

[0025] In a preferred embodiment, the filled pouch has a single chamber containing said remainder of said cleaning agent composition, wherein the single chamber is formed in a generally elongate shape having a width and a length, and wherein a ratio of the length to the width is > 2 and preferably > 3. In addition thereto, or in the alternative, the single chamber is formed in a generally elongate shape having a width, and wherein the width is < 24 mm and > 16 mm, and preferably < 20 mm and > 18 mm. On one hand, such pouch provides sufficient volume for a single unit dose. On the other hand, the resultant pouch geometry allows the insertion through the bottleneck of the pump spray bottle without prematurely rupturing the pouch foil.

[0026] In a preferred embodiment, the pouch is made from a polyvinyl alcohol base foil and a polyvinyl alcohol top foil, wherein a recess to form a single chamber is deep drawn into the base foil, and the top foil is sealed onto the base foil along a single circumferential seal strip, and wherein the seal strip is extending around the recess in a circumferentially closed loop. Such inventive development is based on the finding, that in the prior art pouches with a significant longitudinal shape (length to the width ratio > 2 or even > 3) are construed as tubular bags with one longitudinal back seal and two transverse seals. While this is common practice, easy to manufacture and easy to fill, it turned out not to be suitable for the inventive application. So in contrary to the common teaching the invention provides a two foil construction with a closed loop seal strip. Despite the high length to the width ratio the inventors managed to manufacture, fill and seal such pouches, thereby arriving at a mechanically stable pouch with reliably structural integrity.

[0027] Preferred embodiments of the invention are hereafter described by way of example under reference to the drawing. It is shown in

Fig. 1 a schematic side view of an inventive cleaning agent system comprising a cleaning agent unit dose with a water soluble PVA pouch and further comprising a pump spray bottle,

Fig. 2 a front view of the inventive unit dose according to Fig. 1 with details of a bottom foil chamber and a sealed top foil,

Fig. 3 a schematic top view of an elongate cleaning agent unit dose according to Fig. 2, and

Fig. 4 a variant of the unit dose according to Fig. 3 with reduced length but same chamber width.

[0028] Fig. 1 shows in a schematic side view an exemplary and preferred embodiment of an inventive cleaning agent system for cleaning hard floor and above-floor surfaces, namely for washing and cleaning hard surfaces in the kitchen, bathroom, glass surfaces, plastic surfaces, varnished surfaces, ceramic surfaces and metal surfaces and so forth, depending on the below explained formula variant. The cleaning agent system comprises at least one cleaning agent unit dose 1 and a manually operated pump spray bottle 9. Details of the cleaning agent unit dose 1 are described further down in the context of Figs. 2 to 4.

[0029] The pump spray bottle 9 comprises a bottle body 10 with an upper threaded bottle neck 11, and further comprises a spray head 12. The pump spray bottle 9, namely its bottle body 10 has an internal volume of 750 ml. It may, however, have a reduced volume of down to 500 ml. Smaller or larger volumes may be possible within the scope of the invention, as long as the filled pump spray bottle can be manually carried and operated, preferably by a single hand. The bottle neck 11 has an outer standard 28/410 thread, onto which a spray head 12 is screwed, and has an inner clear diameter d = 21 mm. In preparation for operation the spray head 12 is unscrewed. The bottle body 10 is filled through the bottle neck 11 with tap water. Furthermore, one single cleaning agent unit dose is filled through the bottle neck 11 into the bottle body 10, where it dissolves and mixes with the water, thereby generating a ready-to-use cleaning liquid. The preparation process is completed by screwing the spray head 12 back again onto the bottle neck 11 to achieve the operational configuration as shown in Fig. 1.

[0030] The spray head 12 comprises a not shown internal pump mechanism as known in the art, which is actuated by a pumping lever 13. Upon repeatedly pressing the pumping lever 13 a liquid content stored in the bottle body 10, namely the afore mentioned ready-to-use cleaning liquid is pumped to exit the spray head 12 through a spray nozzle 14. Thereby, the user applies the cleaning liquid onto the to be cleaned surface. Not instantly used cleaning liquid may remain within the pump spray bottle 9 for later use. The pump spray bottle 9 thereby serves as a storage container. Once empty, the pump spray bottle 9 may be refilled with tap water and a corresponding cleaning agent unit dose 1, as often as desired.

[0031] Fig. 2 shows a front view of the inventive cleaning agent unit dose 1 according to Fig. 1. The cleaning agent unit dose 1 comprises a foil pouch 2, in which a single chamber 4 is formed. The single chamber 4 contains and is nearly entirely filled with a liquid filling 3. The pouch 2 is made of water soluble polyvinyl alcohol (PVA or PVOH) foil, in particular of a base foil 6 and a top foil 7. Base foil 6 and top foil 7 may be made of one single foil strip, from which a top foil 7 portion is folded on top of a base foil 6 portion.

[0032] Preferably, base foil 6 and top foil 7 are made from two separate PVA or PVOH foil strips. Both base foil 6 and top foil 7 form the foil pouch 2 tightly delimiting the single chamber 4. A recess 5 is deep drawn into the base foil 6, while the top foil 7 remains generally flat. The initially open recess 5 is filled with the filling 6. In a subsequent step the flat top foil 7 is sealed on top of the base foil 6 along a sealing strip 8 which surrounds the recess 5. Thereby a continuous pouch chain is formed, from which the ready-to-use individual cleaning agent unit doses 1 are cut off and separated. Without the support of the not shown manufacturing devices, the filled pouches 2 tend to adopt a close to circular cross-section as suggested in Fig. 2. Such cross-section allows for insertion of the cleaning agent unit dose 1 through the bottle neck 11 of the bottle body 10 according to Fig. 1.

[0033] Fig. 3 shows a schematic top view of the cleaning agent unit dose 1 according to Fig. 2. As can be seen in the present top view, the top foil 7 is sealed onto the base foil 6 along a single circumferential seal strip 8, wherein the seal strip 8 is extending around the recess 5 in a circumferentially closed loop. It can further be seen from the top view of Fig. 3, that the entire unit dose 1 and in particular its filled chamber 4 has a generally elongate shape. Despite such pronounced elongate shape, it is said single circumferential seal strip 8 contributing to the structural integrity of the cleaning agent unit dose 1 mitigating the risk of leakage and rupture.

[0034] The filled chamber 4 has a length l and a width w. The cross-section of Fig 2 including the width w is approximately constant along the length l. According to the invention, the width w is < 21 mm and > 16 mm, and preferably < 20 mm and > 18 mm. The mean diameter of the above mentioned close to circular cross-section is approximately equal to the width w, and thereby less than the bottle neck's 11 diameter d (Fig. 1). In the shown preferred embodiment the width w is 19 mm. According to the invention, a ratio of the length l to the width w is > 2 and preferably > 3. In the shown preferred embodiment the length l is 84 mm, leading to a length-to-width-ratio of approximately 4.4. According to the invention, the cleaning agent unit dose 1 has a mass in the range from 5 g to 30 g, and in particular in the range from 10 g to 20 g. In the shown preferred embodiment, the mass of the unit dose 1 is approximately 15 g. The actual mass is dependent on the specific type of filling 3 composition. With reference to the below described different cleaning agent compositions, the average mass of one single cleaning agent unit dose 1 is 13,5 g for kitchen cleaner and for window cleaner, and is

15 g for bathroom cleaner, when using the geometric dimensions of Fig. 3.

[0035] Fig. 4 shows a variant of the cleaning agent unit dose according to Fig. 3 with reduced length 1 but same chamber width w. In the shown embodiment, width w is again 19 mm while the length 1 is reduced to 66 mm, leading to unit dose 1 mass of approximately 12 g. The resultant length-to-width-ratio is approximately 3.5. From comparing both embodiments of Figs. 3, 4 it is apparent, that the unit dose 1 mass is adjusted by varying its chamber length 1, while its cross-section shape and width w are kept constant. The embodiment of Fig. 3 is adjusted to the 750 ml water volume of the pump spray bottle 9 of Fig. 1, while the shorter unit dose 1 of Fig. 3 is adjusted to a not shown pump spray bottle with less volume. This allows for the arbitrary use together with different spray bottles having different volumes but standardized 28/410 bottle neck thread.

[0036] As mentioned before, the PVA foil material of the pouch 2 dissolves in the water contained in the pump spray bottle 9, once a single unit dose 1 is inserted. Thereby the polyvinyl alcohol foil material supplements the filling 3 to a cleaning agent composition, which is mixed with said amount of water.

[0037] In a first preferred embodiment, the cleaning agent composition comprises:

Ethyl alcohol	30 - 50 %	Hydrotrope wetting agent	CAS: 64-17-5
Ethylene glycol butyl ether	20 - 50 %	Wetting agent	CAS: 111-76-2
Ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt	5 - 20 %	Surfactant - wetting agent and emulsifier of the dirt and grease	CAS: 1187742-72-8
Sodium salt of diethylenetriamine penta (methylene phosphonic acid)	0.3 - 1.0 %	Complexing agent (binding of calcium ions)	CAS: 22042-96-2
Mixture of natural and synthetic oils	0.3 - 1.5%	Fragrance	---
Colorant	0,05 - 0,15%	Dye	C.I Acid Blue 9
Demineralized water	0.3 - 5 %	Hydrotope	---
Polyvinyl alcohol	2.5 - 3.5%		

[0038] Here, the sodium salt of diethylenetriamine penta(methylene phosphonic acid) leads to a slightly acid result (ph 5 - 7). The first composition is suitable for window cleaning.

[0039] In a second preferred embodiment, the cleaning agent composition comprises:

Ethyl alcohol	30 - 50 %	Hydrotrope wetting agent	CAS: 64-17-5
Ethylene glycol butyl ether	20 - 50 %	Wetting agent	CAS: 111-76-2
Ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt	5 - 2 0 %	Surfactant - wetting agent and emulsifier of the dirt and grease	CAS: 1187742-72-8
Alkanoloamine	0.3 - 1.0 %	Softening agent of water, regulator of pH	CAS: 141-43-5
Mixture of natural and synthetic oils	0.3 - 1.5%	Fragrance	---
Colorant	0,05 - 0,15%	Dye	C.I Acid Orange 7
Demineralized water	0.3 - 5 %	Hydrotope	---
Polyvinyl alcohol	2.5 - 3.5%		

[0040] This second composition is identical to the first composition except that the above mentioned sodium salt is replaced by Alkanoloamine. This leads to a slightly alkaline result (ph 7 - 9). The second composition is suitable for kitchen cleaning.

[0041] Due to their close-to-identical composition, first and second embodiment form a first inventive composition group.

[0042] In a third preferred embodiment, the cleaning agent composition comprises:

1-butoxypropan-2-ol	30 - 50 %	Hydrotrope wetting agent	CAS: 5131-66-8
Ethoxylated alcohols C9-C11	15 - 20 %	Non-ionic surfactants	CAS: 68439-46-3
Lactic acid	20 - 50 %	Descaling agent (dissolution of lime deposits)	CAS: 79-33-4
Mixture of natural and synthetic oils	0.3 - 1.5 %	Fragrance	---
Colorant	0.1 - 0,7 %	Dye	C.I Acid Blue 9 C.I Acid Yellow 23
Polyvinyl alcohol	2.5 - 3.5%		

[0043] The third embodiment resembles a second inventive composition group having a pronounced acid property (ph 1 - 2). The third composition is suitable for bathroom cleaning.

[0044] In a forth preferred embodiment, the cleaning agent composition comprises:

Ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt	30 - 55%	Surfactant - wetting agent and emulsifier of the dirt and grease	CAS: 1187742-72-8
Ethoxylated alcohols C9-C11	5 - 20 %	Non-ionic surfactants	CAS: 68439-46-3
Ethoxylated alcohols C12-C14	5 - 20 %	Non-ionic surfactants	CAS 68439-50-9
Sorbitan monolaurate, ethoxylated	5 - 20 %	Non-ionic surfactants	CAS 9005-64-5
Glycerin	5 - 10 %	Hydrotrope	CAS 56-81-5
Propylene glycol	1 - 5%	H ydrotrope	CAS 57-55-6
Isopropyl alcohol	1 - 5 %	Hydrotrope	CAS 67-63-0
Sodium salt of diethylenetriamine penta{methylene phosphonic acid)	0.3 - 1.0 %	Complexing agent (binding of calcium ions)	CAS: 22042-96-2
Mixture of natural and synthetic oils	2 - 5 %	Fragrance	---
Colorant	0,03 - 0,15%	Dye	C.I Acid Red 18
Demineralized water	0.3 - 5 %	Hydrotope	---
Polyvinyl alcohol	2.5 - 3.5%		

[0045] The fourth embodiment resembles a third inventive composition group having a more or less neutral property (ph 6 - 8). The fourth composition is suitable for floor cleaning.

[0046] Common feature of all preferred compositions and composition groups is the presence of polyvinyl alcohol. For transport and storing the above described pouches 2 are formed by the polyvinyl alcohol portion of said cleaning agent compositions, while the fillings 3 of the pouches 2 consists of the remainder of said cleaning agent composition. Once inserted into the pump spray bottle 9 and immersed in the water, the polyvinyl alcohol pouch dissolves and mixes with the filling to the final cleaning agent composition, and further mixes with the water to a readily usable cleaning liquid.

Claims

1. Cleaning agent composition for cleaning hard floor and above-floor surfaces, wherein the cleaning agent composition comprises one of the following three composition groups,
wherein a first composition group of said three composition groups comprises

- 5 - 20 % w/w of ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt,
- 30 - 50 % w/w of ethyl alcohol,
- 20 - 50 % w/w of ethylene glycol butyl ether,
- 0.3 - 1 % w/w of either sodium salt of diethylenetriamine penta(methylene phosphonic acid) or alkanoloamine,
- 0.3 - 5 % w/w of water, and
- 2.5 - 3.5 % w/w of polyvinyl alcohol,

wherein a second composition group of said three composition groups comprises

- 15 - 20% w/w of ethoxylated alcohols C9-C11,
- 30 - 50 % w/w of 1-butoxypropan-2-ol,
- 20 - 50 % w/w of either lactic acid or acetic acid or propionic acid,
- 0.0 - 5 % w/w of water, and
- 2.5 - 3.5% w/w of polyvinyl alcohol,

and wherein a third composition group of said three composition groups comprises

- 30 - 55 % w/w of ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt,
- 5 - 20% w/w of ethoxylated alcohols C9-C11,
- 5 - 20% w/w of ethoxylated alcohols C12-C14,
- 5 - 20 % w/w of ethoxylated sorbitan monolaurate,
- 5 - 10 % w/w of glycerin,
- 1 - 5 % w/w of propylene glycol,
- 1 - 5 % w/w of isopropyl alcohol,
- 0.3 -1 % w/w of sodium salt of diethylenetriamine penta(methylene phosphonic acid),
- 0.3 - 5 % w/w of water, and
- 2.5 - 3.5% w/w of polyvinyl alcohol.

2. Cleaning agent composition according to claim 1,
characterized in, that the cleaning agent composition further comprises 0,03 - 0,15 % w/w of colorant.

3. Cleaning agent composition according to claim 1 or 2,
characterized in, that the cleaning agent composition further comprises 0,3 -1,5 % w/w of fragrances.

4. Cleaning agent unit dose for cleaning hard floor and above-floor surfaces, wherein the cleaning agent unit dose (1) comprises a cleaning agent composition according to one of the claims 1 to 3, and wherein a pouch (2) is formed by the polyvinyl alcohol portion of said cleaning agent composition, and wherein a filling (3) of the pouch (2) consists of the remainder of said cleaning agent composition.

5. Cleaning agent unit dose according to claim 4,
characterized in, that the cleaning agent unit dose (1) has a mass in the range from 5 g to 30 g, and in particular in the range from 10 g to 20 g.

6. Cleaning agent unit dose according to claim 4 or 5,
characterized in, that the filled pouch (2) has a single chamber (4) containing said remainder of said cleaning agent composition, wherein the single chamber (4) is formed in a generally elongate shape having a width (w) and a length (1), and wherein a ratio of the length (1) to the width (w) is > 2 and preferably > 3.

7. Cleaning agent unit dose according to one of the claims 4 to 6,
characterized in, that the filled pouch (2) has a single chamber (4) containing said remainder of said cleaning agent composition, wherein the single chamber (4) is formed in a generally elongate shape having a width (w), and wherein the width (w) is < 21 mm and > 16 mm, and preferably < 20 mm and > 18 mm.

8. Cleaning agent unit dose according to one of the claims 4 to 7,
characterized in, that the pouch (2) is made from a polyvinyl alcohol base foil (6) and a polyvinyl alcohol top foil (7), wherein a recess (5) to form a single chamber (4) is deep drawn into the base foil (6), and the top foil (7) is sealed onto the base foil (6) along a single circumferential seal strip (8), and wherein the seal strip (8) is extending around the recess (5) in a circumferentially closed loop.

9. Cleaning agent system for cleaning hard floor and above-floor surfaces, wherein the cleaning agent system comprises a cleaning agent unit dose (1) according to one of claims 4 to 8, and wherein the cleaning agent system further comprises a pump spray bottle (9).

10. Cleaning agent system according to claim 9,
characterized in, that the pump spray bottle (9) has a volume in a range from 500 ml to 750 ml.

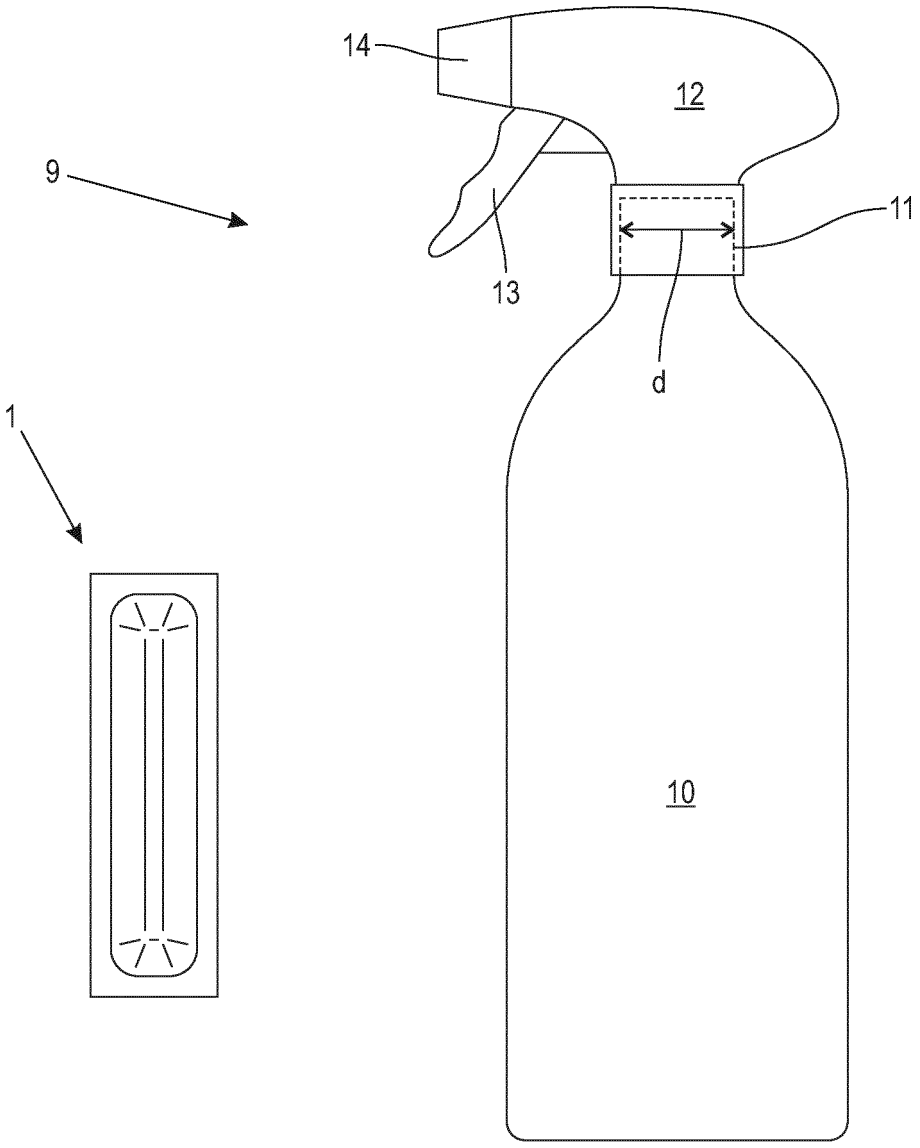

Fig. 1

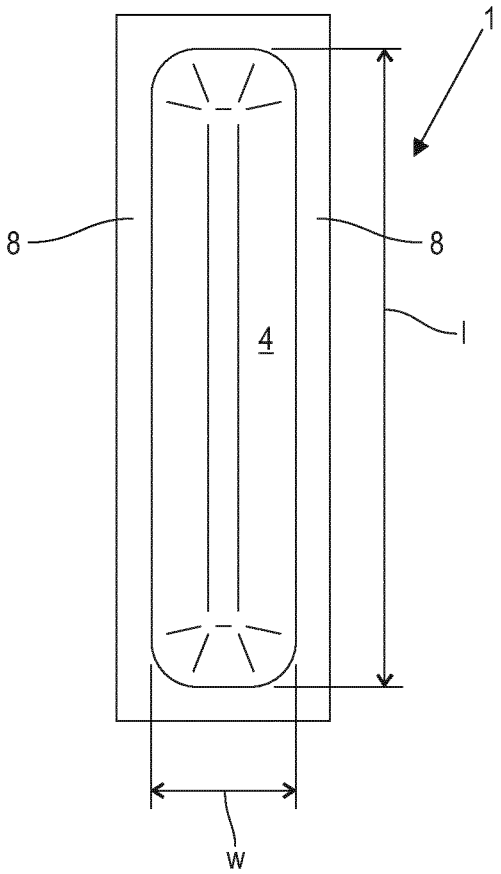

Fig. 3

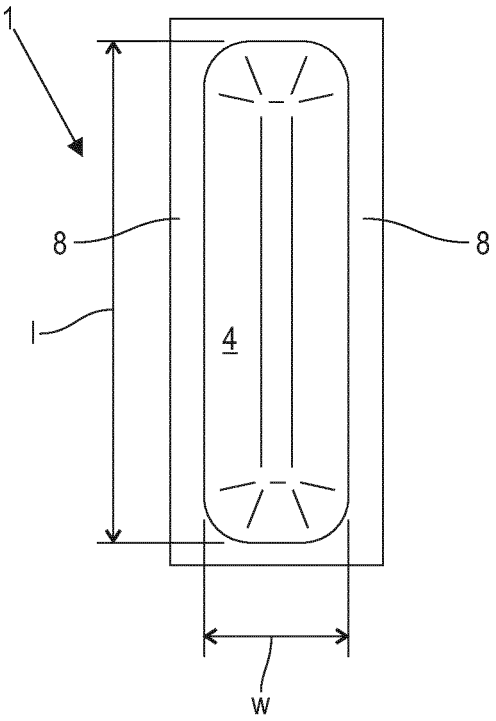

Fig. 4

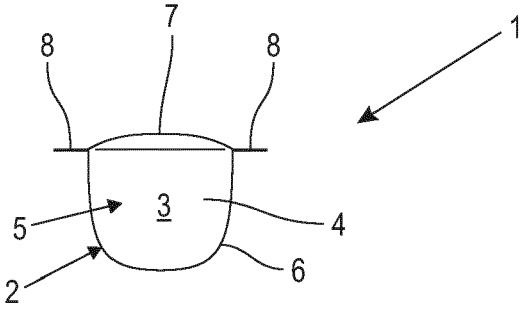

Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 18 19 0712

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2016/005775 A1 (REVOLYMER U K LTD [GB]) 14 January 2016 (2016-01-14) * table 2; compound PVB 16 * * table 2a; compounds PVB6MG-2LP * * table 2a; compounds PVB10SS-2LP * * table 4; compound PVB 32 * * page 64, lines 17,21 * * the whole document *	1-10	INV. C11D11/00 C11D1/18 C11D1/20 C11D3/37 C11D3/30 C11D3/33 C11D3/43 C11D3/20
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Y	US 2012/028874 A1 (FERNANDEZ PRIETO SUSANA [ES] ET AL) 2 February 2012 (2012-02-02) * example 10; compound compartment 2 * * paragraphs [0007] - [0008] * * paragraph [0059] * * the whole document *	1-10	
Y	US 2016/340625 A1 (SCHEIBEL JEFFREY JOHN [US] ET AL) 24 November 2016 (2016-11-24) * paragraphs [0025] - [0027] * * paragraph [0018] * * paragraph [0191]; table 12 *	1-10	TECHNICAL FIELDS SEARCHED (IPC) C11D
A	WO 02/057398 A1 (RECKITT BENCKISER NV [NL]; CORDELLINA ANTONIO [IT]; FRANZOLIN GIORGIO) 25 July 2002 (2002-07-25) * example 1 * * the whole document *	1-10	

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~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
The Hague	31 January 2019	Yildirim, Zeynep

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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EUROPEAN SEARCH REPORT

Application Number
EP 18 19 0712

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	GB 2 376 238 A (RECKITT BENCKISER INC [US]) 11 December 2002 (2002-12-11) * page 14, lines 22-34 * * the whole document *	1-10	

TECHNICAL FIELDS SEARCHED (IPC)

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
The Hague	31 January 2019	Yildirim, Zeynep

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-10(partially)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 18 19 0712

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-10(partially)

A cleaning agent composition suitable for cleaning hard floor and above-floor surfaces, wherein the cleaning agent composition comprises:
- 5 - 20 % w/w of ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt,
- 30 - 50 % w/w of ethyl alcohol,
- 20 - 50 % w/w of ethylene glycol butyl ether,
- 0.3 - 1 % w/w of either sodium salt of diethylenetriamine penta(methylene phosphonic acid) or alkanolamine,
- 0.3 - 5 % w/w of water, and
- 2.5 - 3.5 % w/w of polyvinyl alcohol.
The corresponding cleaning agent unit dose and cleaning agent system comprising said cleaning agent composition.

---

2. claims: 1-10(partially)

A cleaning agent composition suitable for cleaning hard floor and above-floor surfaces, wherein the cleaning agent composition comprises:
- 15 - 20% w/w of ethoxylated alcohols C9-C11,
- 30 - 50 % w/w of 1-butoxypropan-2-ol,
- 20 - 50 % w/w of either lactic acid or acetic acid or propionic acid,
- 0.0 - 5 % w/w of water, and
- 2.5 - 3.5% w/w of polyvinyl alcohol.
The corresponding cleaning agent unit dose and cleaning agent system comprising said cleaning agent composition.

---

3. claims: 1-10(partially)

A cleaning agent composition suitable for cleaning hard floor and above-floor surfaces, wherein the cleaning agent composition comprises:
- 30 - 55 % w/w of ethoxylated and sulphated alcohol C12-C14 of monoisopropanolamine salt,
- 5 - 20% w/w of ethoxylated alcohols C9-C11,
- 5 - 20% w/w of ethoxylated alcohols C12-C14,
- 5 - 20 % w/w of ethoxylated sorbitan monolaurate,
- 5 - 10 % w/w of glycerin,
- 1 - 5 % w/w of propylene glycol,
- 1 - 5 % w/w of isopropyl alcohol,
- 0.3 - 1 % w/w of sodium salt of diethylenetriamine penta(methylene phosphonic acid),
- 0.3 - 5% w/w of water, and
- 2.5 - 3.5% w/w of polyvinyl alcohol.
The corresponding cleaning agent unit dose and cleaning agent system comprising said cleaning agent composition.

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 18 19 0712

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

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