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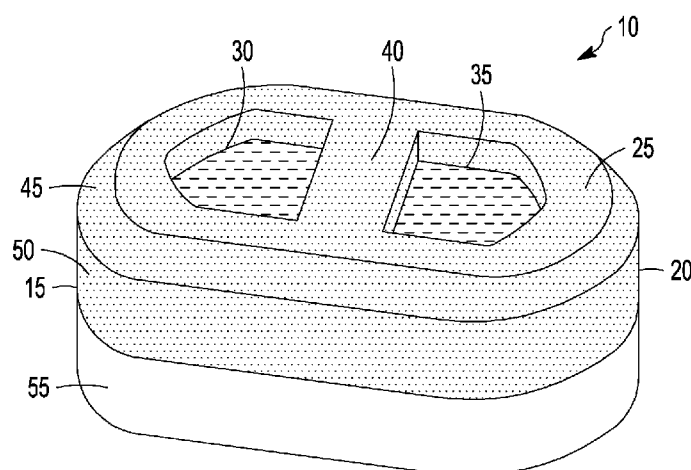


FIG. 1

(57) Abstract: A detergent tablet is provided for which comprises a tablet body defining an outer wall and a plurality of separate detergent compartments formed within the outer wall. The tablet body is substantially formed from a compressed particulate detergent composition and each of the plurality of detergent compartments comprises a detergent composition.



DETERGENT TABLET

FIELD OF THE INVENTION

[0001] The present invention relates to the field of detergent products. More particularly, the invention relates to a detergent tablet suited for use in automatic dishwashers.

BACKGROUND TO THE INVENTION

[0002] Any reference to background art herein is not to be construed as an admission that such art constitutes common general knowledge in Australia or elsewhere.

[0003] Detergent tablets are popular amongst consumers due, in large part, to their convenience in handling and in their representing a pre-determined unit dose. This avoids the need for consumers to measure out appropriate doses of loose powder or liquid detergent and so minimises exposure to potential irritants within the detergent, such as bleach and enzymes.

[0004] It is known in the art to provide detergent tablets with either multiple layers or multiple compartments for the provision of different detergent compositions. For example, a detergent tablet may have a compartment which provides a first detergent particularly useful in the cleaning phase and another compartment holding a further detergent which is particularly useful in the rinse phase. The different detergent compositions are often not chemically compatible and hence the need to keep them physically separate.

[0005] It may also be desirable, in the scenario described, to have the different detergent compositions released at different times during the washing cycle. The solution provided in the art is generally to provide the detergent tablet within an outer package made from a composition comprising a water-soluble polymer, such as poly(vinyl alcohol) (PVOH), by injection moulding or the like. The tablet itself may be formed from different layers with different dissolution rates.

[0006] When exposed to the wash cycle in the wash tub, the PVOH will dissolve and so the detergent compositions are released. When it is desired to have the differing detergent compositions be released at different times during the wash cycle then the detergent tablet is generally formed during the injection moulding process to provide for walls or layers of differing thicknesses. This means the layer formed from the thicker wall will be slower to dissolve than another layer formed with a thinner wall, and so its detergent composition will continue to be released after the detergent composition within the thinner walled compartment.

[0007] It will be appreciated that this solution, while generally effective, greatly complicates the manufacturing process and adds cost to the tablet which must be passed on to the end user.

[0008] There is thus a need for an alternative detergent tablet which is simpler in manufacture or which provides for a useful commercial alternative.

SUMMARY OF THE INVENTION

[0009] In a first aspect, the invention resides in a detergent tablet comprising a tablet body defining an outer wall and a plurality of detergent compartments within the outer wall, wherein the body is substantially formed from a compressed particulate detergent composition and each of the plurality of detergent compartments comprises a detergent composition.

[0010] In embodiments, the tablet body may be formed from more than one layer.

[0011] Each layer may be formed from the same or a different particulate detergent composition.

[0012] In certain embodiments, the tablet body also defines a floor.

[0013] In alternative embodiments, the tablet body defines the plurality of detergent compartments such that the compartments are open at both ends thereof.

[0014] In embodiments, the plurality of detergent compartments may be 2, 3, 4, or 5 separate compartments.

[0015] Preferably, there are 2 detergent compartments.

5 [0016] The detergent compositions within the plurality of detergent compartments may be the same or different.

[0017] In embodiments, at least two of the detergent compositions are different, having different dissolution rates.

10 [0018] In embodiments, the detergent compositions within the plurality of detergent compartments do not extend to the level of an upper surface of the tablet body.

[0019] In embodiments wherein the plurality of detergent compartments are open at both ends thereof, the detergent compositions do not extend to the level of either a lower surface or upper surface of the tablet body.

15 [0020] In a second aspect, the invention resides in a method of forming a detergent tablet of the first aspect including the steps of: (i) compressing a particulate detergent composition to form a tablet body defining an outer wall and a plurality of detergent compartments within the outer wall; and (ii) adding detergent compositions to each of the plurality of detergent compartments, to thereby form the detergent tablet.

20 [0021] In a third aspect, the invention resides in the use of a detergent tablet of the first aspect in the cleaning of a soiled article.

25 [0022] The various features and embodiments of the present invention, referred to in individual sections above apply, as appropriate, to other sections, *mutatis mutandis*. Consequently, features specified in one section may be combined with features specified in other sections as appropriate.

[0023] Further features and advantages of the present invention will become apparent from the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] To assist in understanding the invention and to enable a person

skilled in the art to put the invention into practical effect, preferred embodiments of the invention will be described by way of example only with reference to the accompanying drawings, in which:

[0025] FIG 1 shows a perspective view of a detergent tablet according to an embodiment of the present invention; and

[0026] FIG 2 shows the detergent tablet of FIG 1 without detergent composition in the detergent compartments.

DETAILED DESCRIPTION OF THE INVENTION

[0027] The present invention is predicated, at least in part, on the use of a compressed particulate detergent composition to form a detergent tablet but providing for at least two compartments within the body of the formed tablet which can hold detergent compositions different to that from which the tablet body is formed. This provides for simpler manufacturing and allows the entire tablet itself to be active in terms of detergent capability. The compartments can hold a range of different detergent compositions which can then conveniently be exposed to the washing environment while the tablet body is also breaking down.

[0028] In this specification, adjectives such as additional, and the like may be used solely to distinguish one element or action from another element or action without necessarily requiring or implying any actual such relationship or order. Words such as "comprises" or "includes" are intended to define a non-exclusive inclusion, such that a composition or method that comprises a list of elements does not include only those elements but may include other elements not expressly listed, including elements that are inherent to such a composition or method.

[0029] The term "detergent" as used herein, in relation to both the tablet body and the detergents within the compartments formed within the body of the tablet, is to be construed broadly in that any composition which has an active function within a wash cycle may be considered a detergent. This term therefore explicitly takes in detergents which are designed to digest, break down or otherwise

remove soiling, such as food, from the article being washed as well as those detergents whose main function is assisting in the rinse function, adding a shine to the cleansed article and the like. Any active component required for at least a portion of the wash cycle and being contained within the tablet body may, for the present purposes, be considered a “detergent”.

[0030] The term “about” as used herein in relation to the amount of a component, means that the amount is nominally the number following the term “about” but the actual amount may vary from this precise amount to an unimportant degree.

[0031] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as would be commonly understood by those of ordinary skill in the art to which this invention belongs.

[0032] In a first aspect, the invention resides in a detergent tablet comprising a tablet body defining an outer wall and a plurality of detergent compartments within the outer wall, wherein the body is substantially formed from a compressed particulate detergent composition and each of the plurality of detergent compartments comprises a detergent composition.

[0033] In one embodiment, the body is greater than 60%, 70%, 80%, 85%, 90%, 95%, 97% or 99% formed from a compressed particulate detergent composition. Suitably, the body is formed entirely from a compressed particulate detergent composition.

[0034] The tablet body may define multiple walls or may be viewed as single continuous wall. In any event, the wall(s) define the compartments and keep them separate, one from the other.

[0035] In embodiments, the detergent compartments may be separated one from the other by a divider which is part of the tablet body and is continuous with the outer wall. The divider is also formed from the same particulate detergent composition as the rest of the tablet body.

[0036] That is, in embodiments, the detergent compartments are physically separate, one from the next. The separation is preferably by a wall which is part of the tablet body, as described. The detergent compartments are therefore not

wholly or even partially contained one within another but instead are separate, although preferably adjacent one another.

[0037] Therefore, in one embodiment of the first aspect, there is provided a detergent tablet comprising a tablet body defining an outer wall and a plurality of adjacent detergent compartments within the outer wall, each separated by a divider which separates the entirety of each detergent compartment, one from the other, wherein the body is substantially formed from a compressed particulate detergent composition and each of the plurality of separate detergent compartments comprises a detergent composition.

[0038] In embodiments, the tablet body may be formed from more than one layer.

[0039] Each layer may be formed from the same or a different particulate detergent composition. It may be desirable for each layer to provide for a different functionality or to use separate layers to contain active cleaning agents which are not compatible and so which could not sit within a single layer. The multiple layers can be compressed during tablet formation to adhere together.

[0040] In certain embodiments, the tablet body may be formed from up to 10 layers which may each be the same or different from the other layers. In embodiments there may be 2, 3, 4, 5, 6, 7, 8, and 9 different layers.

[0041] The particulate detergent composition from which the tablet body is formed may be selected from those known in the art for forming compressed particulate detergent tablets. Such detergent tablets are well known and the basis on which different compositions may be selected, for example for stronger cleaning activity or faster dissolution, are known to the person of skill in the art. One non-limiting example is given in the examples section for further guidance.

[0042] Active detergent components present in the particulate detergent composition may be prepared in combination with a carrier and/or a binder for example a polymer such as PEG or liquid silicate. The particulate active detergent agents may be prepared by any known method, for example conventional spray drying, granulation or agglomeration. The particulate active

detergent components are then compressed using suitable tablet press equipment known in the art.

[0043] By way of non-limiting example only, the particulate detergent composition from which the tablet body is formed may comprise one or more of a disintegrant, a builder, a surfactant, a bleach and/or bleach activator, a corrosion inhibitor, an enzyme, a carbonate, a percarbonate, a silicate, a citrate, a sulfate or sulfite drying agent and the like. Preferred active detergent components may include builder compound, surfactant, bleaching agent, bleach activator, bleach catalyst, enzyme and an alkalinity source.

[0044] Suitable surfactants are selected from anionic, cationic, nonionic ampholytic and zwitterionic surfactants and mixtures thereof. Common anionic, nonionic, ampholytic and zwitterionic classes, and species of these surfactants, can be found in U.S. Pat. No. 3,929,678 while suitable cationic surfactants are found in U.S. Pat. No. 4,259,217 and surfactants typically included in automatic dishwashing detergent compositions are listed in EP-A-0414 549 and PCT Applications Nos. WO 93/08876 and WO 93/08874, all of which documents are incorporated by reference herein in their entirety.

[0045] Inorganic or phosphorous-containing builders include, but are not limited to, the alkali metal, ammonium and alkanolammonium salts of polyphosphates (such as the tripolyphosphates, pyrophosphates, and glassy polymeric meta-phosphates), phosphonates, phytic acid, silicates, carbonates (including bicarbonates and sesquicarbonates), sulphates, and aluminosilicates. Silicate builders include the alkali metal silicates.

[0046] Bleaches may include chlorine and oxygen bleaching agents. Hydrogen peroxide, sodium perborate and percarbonate may all be useful. Bleach activators may also be present and may include one or more of tetraacetyl ethylene diamine (TAED), benzoylcaprolactam (BzCL), 4-nitrobenzoylcaprolactam, 3-chlorobenzoyl-caprolactam, benzoyloxybenzenesulphonate (BOBS), nonanoyloxybenzene-sulphonate (NOBS), phenyl benzoate (PhBz), decanoyloxybenzenesulphonate (C₁₀-OBS),

benzoylvalerolactam (BZVL), octanoyloxybenzenesulphonate (C₈-OBS), and perhydrolyzable esters.

[0047] Suitable enzymes will include the usual proteases, lipases, cellulases, amylases, peroxidases and the like which are well known to the person skilled in the art of detergent formulation.

[0048] Buffering agents may also be included and selected from typical carbonates, silicates, citrates, acids, bicarbonates, hydroxides and the like.

[0049] When formed, the tablet may also be provided with an outer coating of a water-soluble material to protect the tablet during handling. The coating layer may comprise a material selected from the group consisting of fatty acids, alcohols, diols, esters and ethers, adipic acid, carboxylic acid, dicarboxylic acid, polyvinyl acetate (PVA), poly(vinyl alcohol) (PVOH), polyvinyl pyrrolidone (PVP), polyacetic acid, polyethylene glycol (PEG) and mixtures thereof. PVOH in the form of a simple coating or bag into which the tablet is placed and the bag heat sealed may be appropriate.

[0050] In certain embodiments, the tablet body also defines a floor. In this embodiment, the tablet body therefore defines continuous outer wall(s) and a floor such that the compartments it defines are open only at one face of the tablet and so the detergent compositions can be simply poured or injected into the compartments without concern over loss through a further bottom face opening.

[0051] In alternative embodiments, the tablet body defines the plurality of detergent compartments such that the compartments are open at both ends thereof. In this embodiment, the floor is absent and so it may be necessary to add the subsequent detergent compositions in multiple small additions whereby a small portion is added hot and is allowed to dry to form a floor and then further detergent composition can be added on top. Alternatively, a thin coating may be applied as a temporary floor to allow for filling of the compartments and the temporary floor is then either removed or it may quickly dissolve in the wash cycle.

[0052] The benefit of the embodiment whereby the compartments are open onto both an upper and a lower face of the tablet body is that during the wash cycle the detergent compositions therein are exposed on two different surfaces to the water and so this can aid in achieving more rapid disintegration or dissolution.

[0053] In embodiments, the plurality of detergent compartments may be 2, 3, 4, or 5 separate compartments.

[0054] Preferably, there are 2 detergent compartments within the tablet body.

[0055] The detergent compositions within the plurality of detergent compartments may be the same or different.

[0056] In embodiments, at least two of the detergent compositions are different having different dissolution rates.

[0057] The detergent compositions within the plurality of detergent compartments may be selected from granular detergents, liquid detergents and gel detergents but at least one of the detergent compositions is not a compressed particulate detergent. That is, the at least one, and preferably all, of the detergent compositions within the plurality of detergent compartments are different in composition from the particulate detergent forming the tablet body.

[0058] In preferred embodiments, there are 2 detergent compartments within the tablet body and each detergent composition therein is different in composition from the particulate detergent forming the tablet body. Preferably, each of the 2 detergent compositions is different from the particulate detergent forming the tablet body and is different each from the other.

[0059] The detergent compositions within the plurality of detergent compartments may be coated to contain the compositions. The coating may be with a water-soluble polymer, as described above, or a gel coating which is also water-soluble. The differing dissolution rates may be set based upon the nature of the gel coating or the thickness of the gel coating or the nature of the detergent composition itself.

[0060] The detergent compositions may be selected from those known in the art. In a preferred embodiment, at least two of the detergent compositions within the compartments are gel compositions. In certain embodiments, all of the detergent compositions within the compartments are gel detergent compositions. Gel compositions have the advantage of being able to be hot injected into the compartments and then quickly solidifying such that they do not necessarily need to be coated to prevent loss of material. Gel compositions can also easily be tailored to give a particular release rate within the wash cycle.

[0061] The gel compositions may comprise, thickeners, diluents, drying agents, gelling agents, surfactants, detergent actives, builders, bleaching agents and the like. These may be selected from those already discussed above. Suitable diluents include alkylene glycol mono lower alkyl ethers, propylene glycols, ethoxylated or propoxylated ethylene or propylene, ethoxylated alcohol, polycarboxylates, glycerol esters, glycerol triacetate, lower molecular weight polyethylene glycols, lower molecular weight methyl esters and amides, and the like. Gelling agents may be selected from castor oil derivatives, polyethylene glycol, sorbitols and related organic thixotropes, organoclays, cellulose and cellulose derivatives, pluronics, stearates and stearate derivatives, sugar/gelatin combination, starches, glycerol and derivatives thereof, organic acid amides such as N-lauryl-L-glutamic acid di-n-butyl amide, polyvinyl pyrrolidone and mixtures thereof.

[0062] Detergent active components in the detergent compositions within the detergent compartments or within the tablet body may include builder compounds, surfactants, enzymes, bleaching agents, alkalinity sources, colorants, perfume, lime soap dispersants, organic polymeric compounds including polymeric dye transfer inhibiting agents, crystal growth inhibitors, heavy metal ion sequestrants, metal ion salts, enzyme stabilizers, corrosion inhibitors, suds suppressers, solvents, fabric softening agents, optical brighteners and hydrotropes.

[0063] The gel compositions may also comprise a colouring agent. This may be to indicate differing functionality of the detergent composition. For example, one colour may indicate a rinse aid while another may indicate a composition

important in active cleaning. It may be that the colours are simply visually pleasing to the consumer. The colours may be chosen from blue, green, purple, yellow, orange, red and the like. For example, in one embodiment, the detergent tablet may comprise two detergent compartments and one may have a green coloured detergent composition which is formulated so as to be a quick dissolving composition which assists with active cleaning of food from the article and the second compartment may contain a yellow coloured detergent composition which is formulated so as to assist with the rinse phase and leaving a shine on glasses and cutlery.

[0064] In embodiments, the detergent compositions within the plurality of detergent compartments do not extend to the level of an upper surface of the tablet body.

[0065] In this embodiment, the detergent compositions may be added into their respective compartments until just below the level of the face or surface of the tablet onto which the compartment opens. Having the composition just below this level provides a significant commercial benefit in providing for tablets which are stackable without the detergent composition of one tablet contacting an upper or lower adjacent tablet.

[0066] In embodiments wherein the plurality of detergent compartments are open at both ends thereof, the detergent compositions do not extend to the level of either a lower surface or upper surface of the tablet body. Once again, this allows the tablets to be conveniently stacked either during manufacturing, storage or prior to use.

[0067] While not wishing to be limited to any particular embodiment, FIGs 1 and 2 indicate an embodiment of a detergent tablet of the invention. Detergent tablet 10 has a body 15 which has continuous outer wall 20 having an upper surface 25. Formed by the wall 20 and upper surface 25 (and divider 40 as described below) are two detergent compartments 30 and 35 which may each comprise a gel detergent composition which may each be different, one from the other. For example, gel detergent composition in compartment 30 may be a fast dissolving composition for active cleaning while the gel detergent composition in

compartment 35 may be a slower dissolving composition especially formulated for rinsing and leaving a shine on utensils, glasses and the like. FIG 2 shows the tablet 10 prior to filling the compartments 30 and 35.

[0068] The compartments 30 and 35 are separated within the body 15 by a divider 40 which is continuous with outer wall 20. The upper surface 25 may join the outer wall 20 via a chamfered portion 45. The body 15 itself may be formed from two separate layers 50 and 55 which, while each being formed from a particulate detergent composition, may differ in composition to provide differing cleaning effects or may simply differ in colourant for a pleasing visual effect.

[0069] It will be understood that the particular shape of the tablet 10 or indeed the walls 20 and detergent compartments 30 and 35 are not particularly limited in any way. So long as they are fit for purpose then any shape may be appropriate.

[0070] It should be appreciated that the gel detergent compositions in compartments 30 and 35 do not fill the compartments all the way up to the level of the upper surface 25. That is, there is a gap between the gel composition outer surface and the level of the upper surface 25 which results in the ability to stack multiple tablets 10 without contamination between gel detergent compositions and the tablet body of adjacent tablets.

[0071] While not shown in the figures it will be appreciated that the tablets 10 may or may not have a floor resulting in either a single or dual opening for the compartments 30 and 35. Further, while also not shown in the figures, the final commercial product of tablet 10 may be located within a water-soluble polymer sachet, such as a PVOH sachet.

[0072] In a second aspect, the invention resides in a method of forming a detergent tablet of the first aspect including the steps of: (i) compressing a particulate detergent composition to form a tablet body defining an outer wall and a plurality of detergent compartments within the outer wall; and (ii) adding detergent compositions to each of the plurality of detergent compartments, to thereby form the detergent tablet.

[0073] In a third aspect, the invention resides in the use of a detergent tablet of the first aspect in the cleaning of a soiled article.

[0074] The detergent tablet for the second and third aspects may be as described in any one or more embodiments of the first aspect.

5 [0075] Preferably, the compressing step is performed using a tablet press.

[0076] Suitably, the detergent compositions are injected at a temperature above room temperature (23 degrees Celsius) to each of the plurality of detergent compartments.

10 [0077] In embodiments, the cleaning is of a soiled article within a dishwasher.

[0078] Suitably, the soiled article is an eating or drinking receptacle or utensil. Plates, bowls, cups, glasses, knives, forks, spoons and the like are non-limiting examples of such eating or drinking receptacles or utensils.

EXAMPLES

15 [0079] Table 1, below, indicates one guide to form the tablet body made from the particulate detergent. The ranges provided allow for modification based upon desired activity and disintegration/dissolution rates and the person skilled in the art will be aware of how to adjust accordingly. Table 2, below, provides a guide to a suitable gel detergent composition suitable for use in a detergent
20 compartment according to the invention.

INGREDIENT	CONTENT % w/w	CAS NO.	FUNCTION
Sodium Citrate	10-20%	6132-04--3	water softener, cleaner
Ethoxylated Alcohol	<10%	68439-49-6	Rinse Aid , grease cleaner
Polycarboxylate	<5%	52255-49-9	Builder/ Antiredeposition
Protease	<5%	9014-01-1	Protein removal
Amylase	<1%	9000-90-2	Starch Removal
Sodium Percarbonate	5-15%	15630-89-4	Oxygen Based Bleach
Sodium Carbonate	15-40%	497-19-8	Limescale Protection/ water softener

Sodium Silicate	<10%	13870-28-5	Glass protection
Citric Acid	<5%	77-92-9	pH adjuster
TAED	<5%	10543-57-4	Bleach Activator
Benzotriazole	<1%	95-14-7	Anti corrosion, stainless steel protector
Sodium Sulphate	10-40%	7757-82-6	Builder
Polyethylene Glycol	<5%	25322-68-3	Process Aid
Cellulose	<5%	9004-34-6	Disintegrant
Blue Dye	<1%		Colour
Yellow Dye	<1%		Colour
Perfume	<1%		Fragrance

Table 1. Guide to composition of the tablet body.

INGREDIENT	RELATIVE AMOUNTS BY WEIGHT
Polyethylene glycol	10-80%
Ethoxylated alcohol	10-80%
Polycarboxylate	1-20%
Colour	As necessary for desired depth

Table 2. Guide to composition of gel detergent for filling into detergent compartments.

5 Manufacturing Process -

[0080] The following working steps may be taken to produce a detergent tablet of the first aspect. The tablet body may be formed using the guide in table 1 and the gel detergent compositions for the detergent compartments may be within the guide set out in table 2:

- 10 a. mix and blend powders for tablet body;
- b. separate colours and/or actives may be used to form different tablet body layers;
- c. form tablet body particulate composition into tablet press and press to shape;

- d. tablet press will allow for formation of multiple detergent compartments during pressing;
- e. gel detergent composition components mixed with heating and desired colour added;
- 5 f. further different gel detergent compositions may be formed, as desired;
- g. inject various hot gel detergent compositions into appropriate detergent compartments and allow to cool; and
- h. form PVOH sachet to encapsulate tablet.

10 [0081] The above description of various embodiments of the present invention is provided for purposes of description to one of ordinary skill in the related art. It is not intended to be exhaustive or to limit the invention to a single disclosed embodiment. As mentioned above, numerous alternatives and variations to the present invention will be apparent to those skilled in the art of

15 the above teaching. Accordingly, while some alternative embodiments have been discussed specifically, other embodiments will be apparent or relatively easily developed by those of ordinary skill in the art. Accordingly, this invention is intended to embrace all alternatives, modifications and variations of the present invention that have been discussed herein, and other embodiments that

20 fall within the spirit and scope of the above described invention.

CLAIMS

1. A detergent tablet comprising a tablet body defining an outer wall and a plurality of detergent compartments within the outer wall, wherein the body is substantially formed from a compressed particulate detergent composition and
5 each of the plurality of detergent compartments comprises a detergent composition.
2. The tablet of claim 1 wherein the tablet body is formed from more than one layer.
3. The tablet of claim 1 or claim 2 wherein the tablet body further defines
10 a floor.
4. The tablet of claim 1 or claim 2 wherein the tablet body defines the plurality of detergent compartments such that the compartments are open at both ends thereof.
5. The tablet of any one of the preceding claims wherein the detergent
15 compositions within the plurality of detergent compartments are the same or different.
6. The tablet of any one of the preceding claims wherein at least one of the detergent compositions within the plurality of detergent compartments are different to the compressed particulate detergent composition.
7. The tablet of any one of the preceding claims wherein at least two of
20 the detergent compositions are different, from one another, having different dissolution rates.
8. The tablet of any one of the preceding claims wherein the detergent compositions within the plurality of detergent compartments do not extend to the
25 level of an upper surface of the tablet body.
9. The tablet of any one of the preceding claims wherein the tablet body further comprises a divider separating adjacent detergent compartments.
10. The tablet of claim 9 wherein the divider is continuous with the outer wall.
- 30 11. The tablet of any one of the preceding claims wherein each detergent compartment is physically separate from the others and is not wholly or partially encompassed therein.

12. The tablet of any one of the preceding claims wherein there are two detergent compartments.

13. The tablet of claim 12 wherein each of the two detergent compartments comprises a different detergent composition and wherein said
5 detergent compositions are different to the particulate detergent composition forming the tablet body.

14. The tablet of claim 13 wherein each of the detergent compositions are gel compositions.

15. The tablet of claim 14 wherein each of the gel compositions dissolve
10 at different rates in water.

16. A method of forming a detergent tablet of any one of claim 1 to claim 15, including the steps of: (i) compressing a particulate detergent composition to form a tablet body defining an outer wall and a plurality of detergent compartments within the outer wall; and (ii) adding detergent compositions to
15 each of the plurality of detergent compartments, to thereby form the detergent tablet.

17. The method of claim 16 wherein the compressing step is performed in a tablet press.

18. Use of a detergent tablet of any one of claim 1 to claim 15 in the
20 cleaning of a soiled article.

19. The use of claim 18 wherein the cleaning is of a soiled article within a dishwasher.

20. The use of claim 18 or claim 19 wherein the soiled article is an eating
25 or drinking receptacle or utensil.

AMENDED CLAIMS
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1. A detergent tablet comprising a tablet body defining an outer wall, a floor and two detergent compartments within the outer wall, wherein the body is substantially formed from a compressed particulate detergent composition and
5 each of the two detergent compartments comprises a different gel detergent composition, which gel detergent compositions dissolve at different rates in water.
2. The tablet of claim 1 wherein the tablet body is formed from more than one layer.
- 10 3. The tablet of claim 1 or claim 2 wherein the gel detergent compositions within the detergent compartments do not extend to the level of an upper surface of the tablet body.
4. The tablet of any one of the preceding claims wherein the tablet body comprises a divider separating adjacent detergent compartments.
- 15 5. The tablet of claim 4 wherein the divider is continuous with the outer wall.
6. The tablet of any one of the preceding claims wherein each gel detergent compartment is physically separate from the others and is not wholly or partially encompassed therein.
- 20 7. A method of forming a detergent tablet of any one of claim 1 to claim 6, including the steps of: (i) compressing a particulate detergent composition to form a tablet body defining an outer wall, a floor and two detergent compartments within the outer wall; and (ii) adding different gel detergent compositions to each of the two detergent compartments, which gel detergent
25 compositions dissolve at different rates in water, to thereby form the detergent tablet.
8. The method of claim 7 wherein the compressing step is performed in a tablet press.
9. Use of a detergent tablet of any one of claim 1 to claim 6 in the
30 cleaning of a soiled article.
10. The use of claim 9 wherein the cleaning is of a soiled article within a dishwasher.

11. The use of claim 9 or claim 10 wherein the soiled article is an eating or drinking receptacle or utensil.

Amended Claims Statement

Claim pages 16 to 17 are presently amended and replaced with new claim pages 16 to 17.

Former claim 1 is amended; claims 3-7 and 12-15 are deleted; and the remaining claims are updated in their dependency.

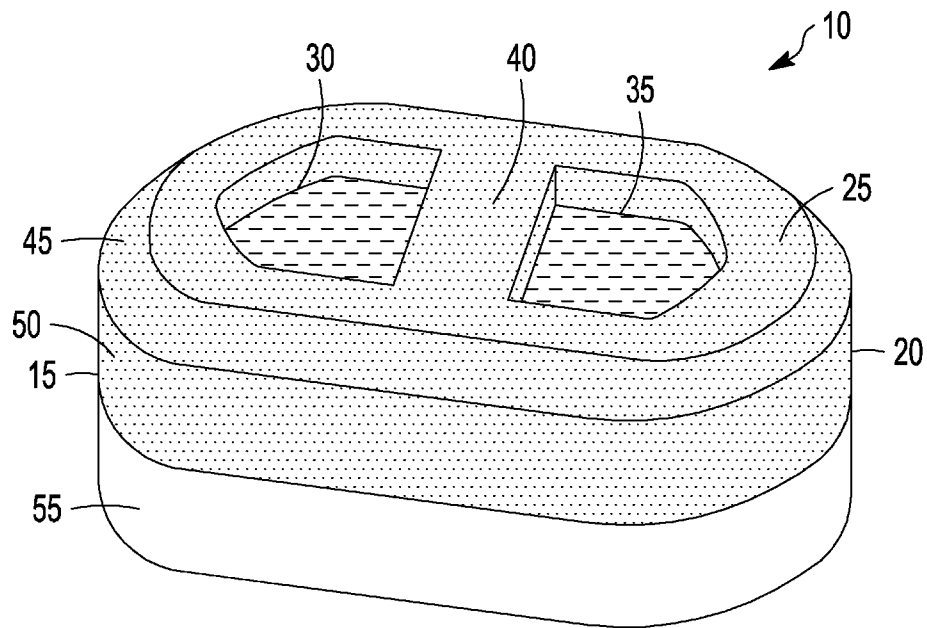


FIG. 1

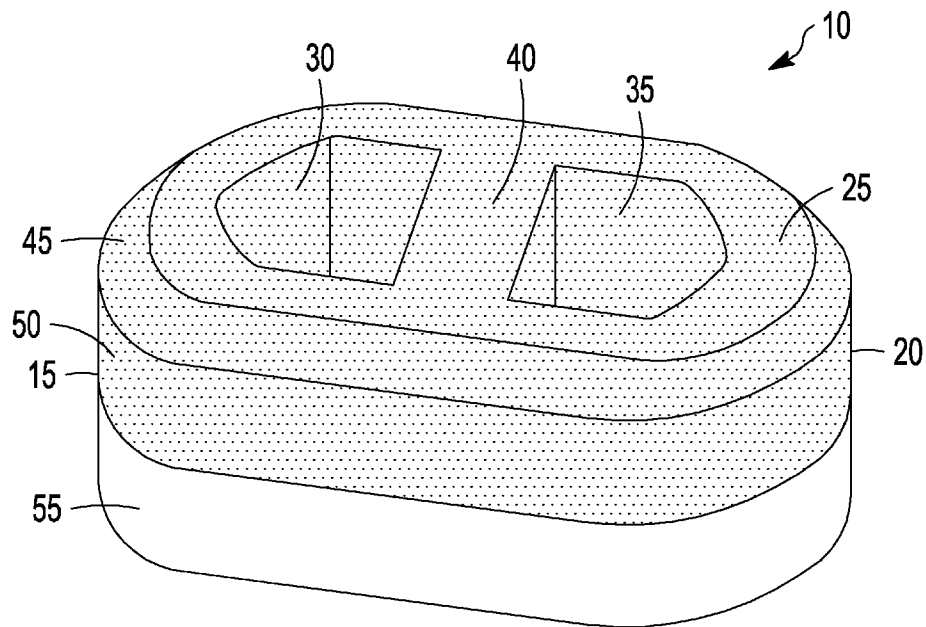


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2018/000235

A. CLASSIFICATION OF SUBJECT MATTER

C11D 17/00 (2006.01) C11D 17/04 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

patenW, CAPLUS. Search terms: detergent, dishwashing, tablet, compressed, compacted, compartment, divider, wall, separate, gel, cavity, indentation, depression, C11D 17/042, Delpack, Phillip Cronk and like terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	



Further documents are listed in the continuation of Box C



See patent family annex

* "A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 18 January 2019		Date of mailing of the international search report 18 January 2019	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaustalia.gov.au		Authorised officer Andrew Matthews AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. +61262832693	

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/AU2018/000235
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 20080004202 A1 (WOLFGANG et al) 03 January 2008 See whole of the document but particularly the Abstract, [0016], [0017], [0027], [0039], [0044], [0049], [0244], and [0265].	1-13, 16-20
X	WO 1999027068 A1 (THE PROCTER& GAMBLE COMPANY) 03 June 1999 See whole of the document but particularly the Abstract, Example 1, pages 4, 6, 13 and 70-72.	1, 4-7, 9-20
X	WO 1999024550 A1 (THE PROCTER& GAMBLE COMPANY) 20 May 1999 See whole of the document but particularly the Abstract, the Examples, page 1 line 4-6, and page 51 line 17-19.	1-3, 5-7, 9-11, 16-20

Form PCT/ISA/210 (fifth sheet) (January 2015)

INTERNATIONAL SEARCH REPORT		International application No.	
Information on patent family members		PCT/AU2018/000235	
This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.			
Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
US 20080004202 A1	03 January 2008	US 2008004202 A1	03 Jan 2008
		DE 102004020839 A1	24 Nov 2005
		EP 1740689 A1	10 Jan 2007
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Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.			
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INTERNATIONAL SEARCH REPORT Information on patent family members		International application No. PCT/AU2018/000235	
This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.			
Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
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		US 6440927 B1	27 Aug 2002
		US 6486117 B1	26 Nov 2002
		WO 9924547 A1	20 May 1999
		WO 9924548 A1	20 May 1999
		WO 9924549 A1	20 May 1999
End of Annex			
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001. Form PCT/ISA/210 (Family Annex)(January 2015)			