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(71) Applicant:
THE PROCTER & GAMBLE COMPANY
Cincinnati, Ohio 45202 (US)

(72) Inventor:
De Caluwe, Robert Corneel Julia Maria
1840 Londerzeel (BE)

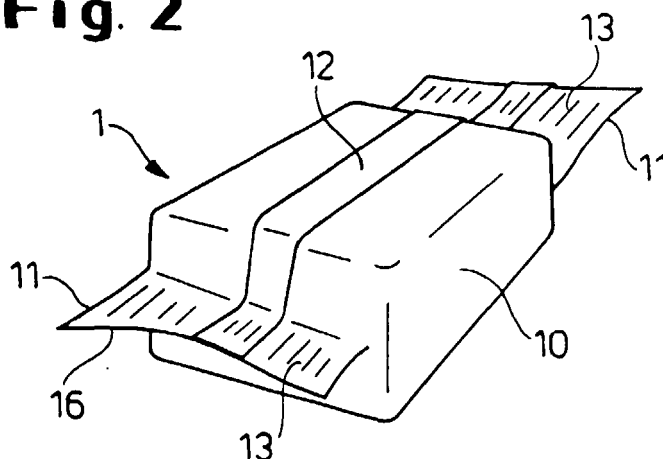
(74) Representative:
Engisch, Gautier et al
BVBA Procter & Gamble Europe SPRL,
Temselaan 100
1853 Strombeek-Bever (BE)

(54) **A package with child deterrent means**

(57) The present invention is directed to a package (1) for containing at least one unit of a consumer product, comprising a film which is folded and closed, being characterized in that it further comprises an olfactory child deterrent means. The nasty-smelling substance which is used as olfactory child deterrent means has no effect on human or animal health. It is preferably contained into micro-capsules as a coating at the surface of

the package, and is released by contacting said micro-capsules with sweat. In one preferred embodiment of the present invention, the package further comprises a structural means, for example rectilinear cuttings (13) at the distal sealed extremities of the package. Most preferably said structural child deterrent means is used in combination with said olfactory child deterrent means.

Fig. 2



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Description

Field of the invention

[0001] The present invention relates to a package for containing tablets of detergent which comprises a child deterrent means.

Background of the invention

[0002] Flow-wrap unitary packages for containing at least one tablet of detergent are representative of the various packages to which the present invention can apply; such packages are typically made, for example, out of a plastic, or paper-coated film which is folded and longitudinally sealed, so as to form a tube into which at least one unit of a consumer product, for example a detergent tablet is inserted. The tube is then closed at each of its two distal extremities by the means of distal seals that are perpendicular to the longitudinal seal. Furthermore, due to the packing process, the unitary packages are produced from a continuous film, and so they are separated by distal cuttings that are made in the region of the distal sealings.

[0003] Unitary packages for detergent tablets are well known and used in the art. Such unitary flow-wrap packages are typically made as described above. However they present some disadvantages. Detergent tablets generally use a composition of chemical compounds that can be dangerous if ingested. This is more particularly true in the case of young children that tend to be attracted by small flow wrap unitary packages, and that are more likely to try and open the package, access the tablet and bite/ingest it. Moreover, in the case of young children, the effect of chemicals may be even more damaging for their health. Furthermore, the unitary tubes are usually formed from a long roll of film, then filled with tablet(s). They are then sealed and cut to be separated from each other. The cuttings at the distal ends of one unitary pack usually contain indentations that are to be used by the consumer as facilitating means for the opening by hands. However, such facilitating means also facilitates access to the tablet for the young children, and thus increases the risk of poisoning. One means that has been applied to avoid such poisoning is the use of non-oriented packaging films. Such films are known as being difficult to tear open without using a tool, or without applying a tearing strength such that it that shall be applied only by an adult.

[0004] The following reference is directed to a unit of detergent for automatic dish-washing packaged in a film: EP-0-700989, Procter & Gamble, filed 12 September 1994 (D1): it discloses a detergent unit, for example a tablet, for use in automatic dish-washing machines, that is packaged inside a film. The package is not to be opened, and the tablet is used while still packed. For that purpose, the film is made of a water-soluble material, which is completely dissolved only after reaching

the main wash of the wash cycle. In one embodiment of the invention, the film is coated with a nasty tasting substance to be used as a child deterrent means, thus avoiding accidental ingestion of the whole package, including the tablet by young children.

[0005] The above document, while solving some issues, is intended only for use without being opened. But such a child deterrence does not apply to a package that is constructed so that it must be opened before using the contents. There is still a need for such a packaging film for a detergent unit to be opened only by adults and not by children.

[0006] It is therefore one main object of the present invention to provide the user with an openable package for containing units of consumer products to be opened before use of the contents, such as detergent tablets, that comprises means that prevent young children from opening, while being openable by adults.

Summary of the invention

[0007] The present invention is directed to a package for containing at least one unit of a consumer product, comprising a film which is folded and closed, being characterized in that it further comprises an olfactory child deterrent means. The nasty-smelling substance which is used as olfactory child deterrent means has no effect on human or animal health. It is preferably contained into micro-capsules as a coating at the surface of the package, and is released by contacting said micro-capsules with sweat. In one preferred embodiment of the present invention, the package further comprises a structural means, for example rectilinear cuttings at the distal sealed extremities of the package. Most preferably said structural child deterrent means is used in combination with said olfactory child deterrent means.

Brief description of the drawings

[0008] The invention will now be explained in detail with reference to the following accompanying figures which are referred to as:

- Figure 1A: which is an enlarged top view showing a distal extremity of a package that features indented cuttings.
- Figure 1B: which is an enlarged top view showing a distal extremity of a package that features wave-shaped cuttings.
- Figure 2: which is a general perspective view of a parallelepipedic package according to the invention, with parallel distal sealed extremities.
- Figure 3: which is a general perspective view of a tetraedric package according to the invention, with perpendicular distal sealed extremities.

Detailed description of the invention

[0009] Now referring to figure 2, a package (1) is shown that comprises a package body (10) and at least two distal ends (11). The package is made out of any suitable film material such as coated paper, or plastic film made out of, for example polyethylene or polypropylene, that can be mono or bi-oriented, but that is preferably non-oriented. The package can be made out of one single material or out of a combination of several materials. Unlike the package of D1, the package according to the present invention needs to be opened in order to access the contents before use of said contents.

The package can have any size that is suitable for containing at least one unit of a consumer product that is considered as dangerous, such as for example detergent compositions, pesticides, insecticides, or medicines. Said unit is either non particulate solids such as tablets or briquettes or bars, or under the form of a powder or granulates, or even under a liquid form. In one preferred embodiment of the present invention, the package is intended to be used for containing at least one detergent tablet for use in laundry or dish-washing purposes. Such tablets are usually considered as dangerous consumer products, if ingested. Said tablet may have any suitable shape, but is preferably symmetrical so as to ensure complete and uniform dissolution in the wash liquor during the wash cycle. The detergent may be of any suitable composition, and may comprise for example surfactants, suds suppressors, bleaches, builders, enzymes, fillers, and perfumes.

A unit of a consumer product, such as a unit of detergent product is typically defined as a dosed quantity of said detergent suitable for use during one wash cycle. For example, when using an automatic washing machine, for dish or laundry, the user will put one tablet inside the washing machine that will dissolve during the wash cycle, with action onto the dishes or the clothes, for example. However, more than one unit may be used for one wash cycle, for example in extreme dirtiness of items to wash, amount of items to wash, or hardness of water.

[0010] The present invention is applicable to packages suitable for packing a dose of a dangerous consumer product, which are made out of a film which is closed by sealings, and more preferably, a flow-wrapped package.

The process of making such flow wrap packages is well known and used by those skilled in the art. Such a process typically comprises for example, the steps of forming a tube from a roll of film, making a longitudinal sealing (12) along the great length of the film, so as to create a tube, seal and cut in a first portion all along the width of the tube so as to create a pocket into which the contents is introduced. Finally, a second portion of the tube is sealed and cut so as to close and detach a unitary package that comprises the longitudinal sealing

(12) and two distal sealed extremities (11). It is obvious that variations of this process are well known and used in the art of making flow wrap packages, depending for example on the nature of the contents. For example, powders, or liquids are most preferably filled in a tube that is vertically formed, filled and sealed, while solid contents is generally fed in a tube that is vertically formed filled, and sealed. Further, the overall shape of the package (1) may vary, for example the package (1) can be parallelepipedic, when the distal sealed extremities (11) are parallel (i.e. located along the same plane), as shown in figure 2. Another example of shape is shown in figure 3: the package (1) is tetraedric, when the distal sealed extremities (11) are located in perpendicular planes.

[0011] The sealings either the longitudinal one, or along the distal extremities of the package can be made by the means of heat sealing, or by cold sealing. Cold sealing is performed by using the properties of the packaging film to stick onto itself, or by using a cold glue with excellent tacking properties, so that no heat is required for the sealing, but only pressure applied by the sealing jaws. Both cold and heat sealing are well known in the art. Any other suitable sealing process shall be applied such as for example ultrasonic sealing. It is possible to adapt the quality of a sealing, depending on the use that is to be made of said sealing. Variations shall be dosed and applied during the sealing operation, by modifying for example the time, temperature or pressure of the sealing jaws onto the film, or the surface of the sealings as well. For example, some sealings are made such that it is easy to peel them off (i.e. delaminate them) for easy opening of the package. However, in the package (1) according to the present invention, the sealings shall preferably be made such that peeling the seal off, requires tearing strength and movements coordination that cannot be applied by a young child, but only by an adult. It is not the purpose of the present description to give the appropriate parameters for achieving such sealings, since such parameters can be dosed and applied by a person skilled in the art.

[0012] The package (1) may further comprise a structural child-deterrent means which makes said package non-obvious for a child to open. Several ways of achieving said structural means shall be applied to the present invention, that are described in the following examples.

In a first embodiment, the distal extremities of the package comprise rectilinear cuttings (13), as shown in figures 2 and 3. In a second embodiment, the structural child-deterrent means is achieved by wave-shaped cuttings (14) at the distal extremities of the package, as shown in figure 1B. In both of these embodiments, it is difficult to open the package by using hands by tearing the packaging film in the region of these cuttings, because there is no weak point along the film edges that could be used for initiating a tear and then create an opening. This is even more difficult for a young child.

Optionally but preferably, the packaging film is non-oriented, so as to improve the difficulty to open the package using hands only. A tool, or at least a certain strength is required to tear and open the package, said certain strength being such that it is only applicable by an adult.

While preferred embodiments of the present invention comprise rectilinear or wave-shaped distal cuttings, indented cuttings (15), as shown in figure 1A may also be used, but in combination with non-oriented film, so as to create a structural child-deterrence. In such a package, while the indentations could be used as a facilitating means by an adult for initiating a tear in the film and then an opening, the non-oriented film is too difficult to tear open by a young child.

[0013] It has been shown that young children who encounter difficulties in opening a package with their hands, typically use their teeth as a cutting/tearing tool, and most of them manage in the opening operation in a few minutes. This is why the package according to the present invention is provided in at least one portion, with a nasty smelling substance which is present at the surface of the packaging film, said substance being dissolved by sweat during contact of the package with hands, and said substance being particularly repulsive to children. The substances suitable for the purpose of the present invention are volatile compounds with a repellent odor. These substances shall be chosen such that they do not constitute a danger for human health, at least at concentrations which are suitable for the purpose of the present invention. While any substances which combine the properties of volatility with a repellent smell can be applied, said substances are preferably comprised within the chemical families of: iso-valeric acids, butyric acids, and civet oils.

[0014] In a preferred embodiment of the present invention, the nasty smelling substance is contained into micro-capsules which are incorporated into a coating lacquer at the surface of the package. Such micro-capsules are not broken by contact with a neutral surface, but only split and release the nasty smelling substance, when contacting such human fluids as sweat or saliva, preferably sweat only. Such dissolvable micro-capsules are known in the art of making labels with perfumes incorporated, for advertisement purposes.

[0015] At the time the child touches the package, the sweat that coats the surface of her/his hands dissolves said micro-capsules, thus releasing the nasty smelling substance. As a result, the child is repelled by the nasty smell and leaves the package away. Furthermore, it is believed that such a system will allow the parents to quicker be aware that their child has been playing with a dangerous product, and thus, they will be more prompt to remove/arrange the tablets.

[0016] The process of making micro-encapsulated substances is well known in the art. Said microcapsules can be made for example of the following composition: (a) at least one pigment, including for example: titanium

dioxide, zinc oxide, calcium carbonate, clay, starch grain; (b) an adhesive compound including for example cellulose derivatives, maleic acid resin, ethylene/acryl-styrene/modified acryl; (c) melamine formalin resin prepared by polymerization at above 65°C, by dispersing hydrophobic matter - in the present invention, the nasty smelling compound - in the acid aqueous solution of maleic anhydride copolymer, adding melamine-formaldehyde initial polymer to the emulsion prepared, and depositing melamine-formaldehyde polymer in the form of microcapsule membrane, and (d) an alcohol type dispersion medium. The ink comprising the microcapsules being further composed of at least one organic solvent which is dried quickly, being used profitably for flexography, or offset printing.

[0017] A preferred process to cover the surface of the film with micro-capsules is using a printing technique, such as for example off-set printing, preferably a rotary offset printing technique. Rotary offset printing machines have been used for a number of years and their use is well known in the art, which may well be used to coat a film with micro-capsules as well. The basic mechanisms, principles, and steps of operation for modern rotary printers include chemically forming an image on a thin metal image plate. The thin image plate therearound is attached around the circumference of a plate cylinder. Ink and a water solution are applied by inking unit rollers and dampening unit rollers to the respective chemically treated areas that are to form an image on the image plate as it rotates with the plate cylinder. The plate cylinder rolls the image plate against a blanket cylinder offsetting reverse image around the circumference of the blanket cylinder. A sheet of print paper or other material, such as a plastic film, to be printed is fed into the press and gripped by an impression cylinder. The impression cylinder pulls the paper into rolling contact between the blanket cylinder and the impression cylinder. Under rolling pressure between the two cylinders, the image is then imprinted from the blanket cylinder onto the paper. The imprinted image is the reverse of that on the blanket cylinder so that it appears as originally formed on the image plate. After the paper is imprinted, it is removed from the impression cylinder gripper and transferred to a collection tray, if printing is finished. If additional colors or images are to be applied, the sheet may be transferred to one or more other impression cylinders which grip the print paper from a transfer gripper and roll the paper against a subsequent blanket cylinder for additional printing.

[0018] For the purpose of making a package according to the present invention, the micro-capsules containing the nasty smelling substance are for example added to the ink and water solution, and applied to the film between the impression cylinder and the blanket cylinder, via the inking unit rollers and the plate cylinder.

[0019] While the micro-capsules may be added to the film in a separate operation, for example by spraying, or by transfer through application rollers, their appli-

cation to the film is preferably performed during the printing operation, for example during the offset printing operation as described above, since it reduces the number of process steps, thus leading to lower manufacturing costs.

[0020] In the most preferred embodiment of the present invention, the child-deterrent effect is best achieved by a package (1) which features as a combination: (a) a structural child-deterrent means as previously described, preferably combining rectilinear distal cuttings with non-oriented film material, with (b) a releasable nasty smelling substance applied onto the package. The former means logically leading the child to use the latter one: for example, when the package (1) comprises rectilinear cuttings (16) at the distal extremities (11), a child will encounter difficulties in tearing the film since no weak points along the film edges can be found. Then, the child has to spend more time handling the package before she/he can access the contents, such time being sufficient for the nasty smell to spread and repel the child away from the package.

Claims

1. A package for containing a consumer product, comprising a film which is folded and closed, being characterized in that it further comprises an olfactory child deterrent means. 25
2. A package according to claim 1, wherein said olfactory means is achieved by coating at least one portion of the film with a nasty smelling substance. 30
3. A package according to any of the preceding claims, wherein said nasty smelling substance is contained into micro-capsules. 35
4. A package according to any of the preceding claims, wherein said nasty smelling substance is released only by action of sweat. 40
5. A package according to any of the preceding claims, wherein the nasty smelling substance is isovaleric acid, butyric acid or civet oil. 45
6. A package according to any of the preceding claims, wherein said package (1) further comprises a structural child deterrent means.
7. A package according to any of the preceding claims, wherein said structural child deterrent means is achieved by rectilinear cuttings at said distal extremities of said package (1). 50
8. A package according to claims 1 to 6, wherein said structural child deterrent means is achieved by wave-shaped cuttings at said distal extremities of said package (1). 55
9. A package according to any of the preceding claims, wherein said structural child deterrent means is achieved by making the package (1) out of non-oriented thermoplastic film. 5
10. A package according to any of the preceding claims, wherein the package (1) is a flow-wrapped package.
11. A packaged consumer product which is the combination of a package as described in the preceding claims with a consumer product. 10
12. A packaged consumer product according to claim 11, wherein said consumer product is a tablet of a detergent composition. 15
13. A process of using a packaged consumer product as claimed in any of the preceding claims, wherein the process requires the opening of said package prior to the use of said consumer product. 20
14. A process of using a packaged consumer product as claimed in any of claims 1 to 11, wherein the process requires using the consumer product without opening the package, said package being water-dissoluble.

Fig. 1A

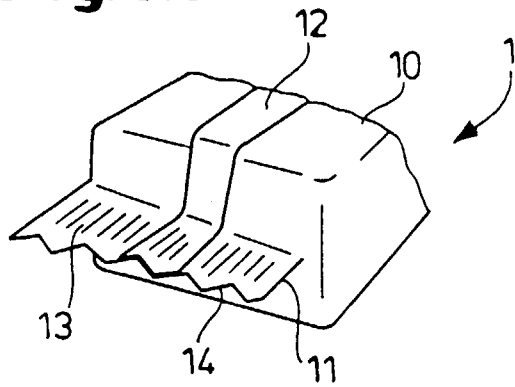


Fig. 1B

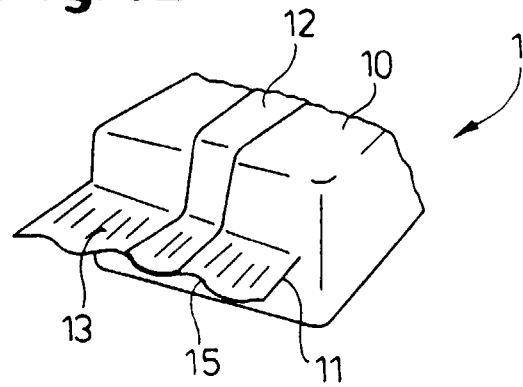


Fig. 2

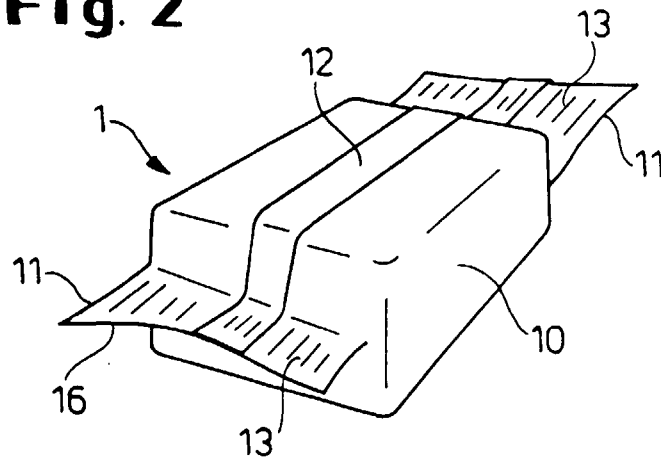
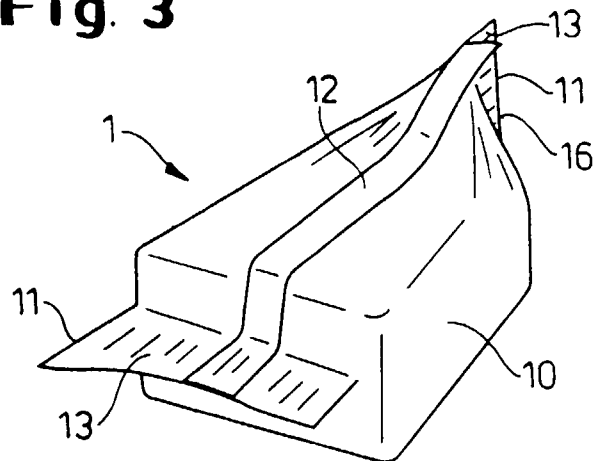


Fig. 3





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 98 87 0224

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION
X	DE 296 12 148 U (SICHART) 4 December 1997 (1997-12-04)	1,2,11, 12,14	B65D79/00
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Place of search THE HAGUE		Date of completion of the search 26 August 1999	Examiner Lenoir, C
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			

EPO FORM 1503 03/82 (P04C01)



European Patent
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Application Number
EP 98 87 0224

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims 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 the first ten claims.

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:



European Patent
Office

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 98 87 0224

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: 1-5,10-14

Claim 1:

A package for containing a consumer product, comprising a film which is folded and closed, with features relating to olfactory child deterrent means.

2. Claims: 6-9

Claims 6 to 9:

A package according to claim 1, said package further comprising a structural child deterrent means.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 87 0224

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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