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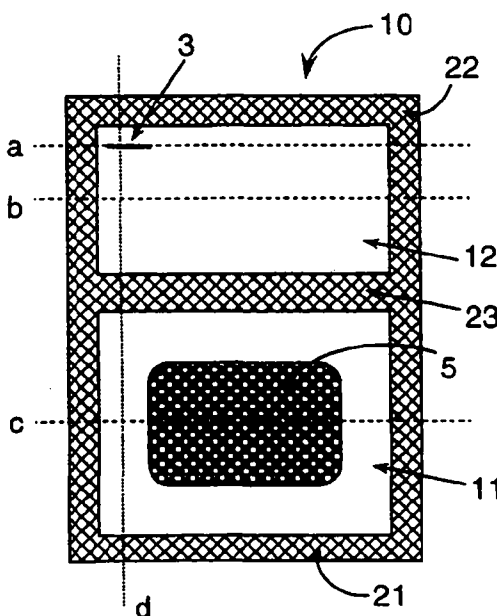
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(54) Title: NON-RECLOSABLE PACKAGING FOR PRODUCTS THAT ARE HAZARDOUS TO HEALTH, AND METHOD  
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(54) Bezeichnung: NICHTWIEDERVERSCHLIESSBARE VERPACKUNG FÜR GESUNDHEITS-GEFÄHRDENDE  
ERZEUGNISSE, SOWIE VERFAHREN ZU DEREN HERSTELLUNG



(57) Abstract: The invention relates to a non-reclosable packaging (10) for products that are hazardous to health, particularly pharmaceutical products, comprising a first packaging material element (1) and a second packaging material element (2), both packaging material elements (1, 2) situated one above the other. The packaging (10) has at least one planar section (11) on whose edge or edges (21) both packaging material elements (1, 2) are detachably joined to one another. At least one cavity (4), which is closed on all sides while serving to accommodate the packaged good (5), is formed between both packaging material elements. The packaging has at least one second planar section (12) that is located outside of said first planar section (11) or is adjoined thereto, and both packaging material elements (1, 2) are detachably joined to one another on the edge or edges (22) of the second planar section. At least one of the two packaging material elements (1, 2) is provided with at least one structure (3), which extends inside the second planar section (12) and which enables the packaging material element(s) to be torn.

(57) Zusammenfassung: Nicht wiederverschließbare Verpackung (10) für gesundheits gefährdende Erzeugnisse, insbesondere pharmazeutische Erzeugnisse, umfassend ein erstes Packstoff-Element (1) und ein zweites Packstoff-Element (2), wobei die beiden Packstoff-Elemente (1, 2) übereinanderliegend angeordnet sind;

die Verpackung (10) mindestens einen ersten Flächenabschnitt (11) aufweist, an dessen Rand oder Rändern (21) die beiden Packstoff-Elemente (1, 2) lösbar miteinander verbunden sind, wobei zwischen den beiden Packstoff-Elementen mindestens ein allseitig umschlossener Hohlraum (4) zur Aufnahme des Packgutes (5) gebildet wird; die Verpackung mindestens einen zweiten Flächenabschnitt (12) aufweist, der außerhalb des genannten ersten Flächenabschnitts (11) liegt oder an diesen angrenzt, und an dessen Rand oder Rändern (22) die beiden Packstoff-Elemente (1, 2) lösbar miteinander verbunden sind; und wobei zumindest eines der beiden Packstoff-Elemente (1, 2) mit mindestens einer Struktur (3) versehen ist, die innerhalb des zweiten Flächenabschnitts (12) verläuft, und die das Einreißen des/der Packstoff-Elements/Elemente ermöglicht.

Non-reclosable package for products prejudicial to health,  
as well as process for its production

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The invention relates to non-reclosable packages for products prejudicial to health, especially for pharmaceutical products. The invention further relates to processes for the production of such packages and for the packaging of products by means of such packages.

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Increased demands are made on the safety of packages which are used for packaging products that are potentially detrimental to health, in order to prevent unauthorized removal of the products or to prevent any use thereof which is not as intended. Particularly in the packaging of medicaments it must be ensured by appropriate measures that the packaged product cannot be removed from the package by children. To this end, child-resistant packages of various types have been developed, and international standardised testing procedures have been introduced to test child-resistance (DIN EN 862, relating to non-reclosable packages for non-pharmaceutical products; DIN EN 14375, relating to non-reclosable packages for pharmaceutical products).

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On the other hand, a child-resistant design must not lead to authorized opening of the package and to opening which is in accordance with the designated use being made unreasonably difficult. A child-resistant medicament package must be conditioned such that, for example, elderly people too are capable of opening the package by themselves and within a few minutes.

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The packages of the present invention are non-reclosable packages with at least one releasable connection (e.g. a sealed seam). Opening takes place in such a manner that one

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or more releasable connections are released manually, without the aid of auxiliary means or tools, by pulling apart, thereby making the packaged product accessible so that it can be removed through the resultant opening.

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The object of the present invention was to provide a package of the aforementioned type which is suitable for the packaging of products which are potentially prejudicial to health, and which, in particular, is suitable as a child-resistant package, and which in a simple manner enables  
10 handling as intended.

This object is achieved by means of a package according to claim 1, by means of the use of such a package according to  
15 claim 15, and by means of the process of production and packaging according to claim 16, as well as by the embodiments described in the dependent claims.

According to claim 1, a non-reclosable package for products  
20 which are prejudicial to health, particularly pharmaceutical products, according to the invention comprises a first packaging material element and a second packaging material element, with the two packaging material elements being arranged so as to lie on top of each other. The package further-  
25 thermore has at least one first surface section, at the margin or margins of which the two packaging material elements are releasably connected with each other, whereby at least one cavity which is enclosed on all sides and serves to receive the product to be packaged is formed between the  
30 two packaging material elements. The package furthermore has at least one second surface section which lies outside the said first surface section or adjoins the latter, and at the margin or margins of which the two packaging material elements are releasably connected with each other. At  
35 least one of the two packaging material elements is provided with at least one structure which extends within the

second surface section (12) and enables partial tearing of the packaging material element(s).

Opening of the package generally takes place in such a way that one of the two packaging material elements, or both of them, is/are torn within the second surface section by using the force of ones fingers, beginning at the said structure. This produces two freely accessible margins of the packaging material elements which can serve as gripping aids or gripping tabs to separate the releasable connections between the two packaging material elements. Finally, the releasable connections in the first surface section are also released thereby, thus making the cavity containing the packaged product accessible.

On account of these features it is possible to design the package such that opening thereof is only possible through an ordered sequence of at least four steps:

- (i) folding or doubling the package along a line, making the said structure accessible for tearing;
- (ii) partially tearing the package at the place provided with said structure and continuing to tear along said structure;
- (iii) gripping the now exposed edges of the packaging material elements as gripping aids (tear tabs), and
- (iv) pulling apart and releasing the connections between the packaging material elements.

This handling poses considerable problems for children, especially for infants, but adults can perform it without difficulty and without the aid of tools.

Generally, the packaging materials used for producing the packaging material elements must exhibit a tear strength which is sufficient to ensure that the package, in undamaged condition, cannot be destroyed without the aid of auxiliary means, e.g. tools. Packaging materials suitable for

this purpose are known to those skilled in the art; for example, film-like, flexible materials of plastic or metal (e.g. aluminium), or composites of the materials mentioned may be utilised. Both mono-films and two- or multilayered laminates may be used as film-like materials. As plastic materials, the following are, in particular, taken into consideration, either singly or in combination: polyester (e.g. polyethylene terephthalate), polyethylene (e.g. HDPE; LDPE), polypropylene, polyisobutylene, polystyrene, polyvinyl chloride, polyamide, polycarbonate, and cellulose acetate. The thickness of the film-shaped materials is preferably in the range of 5 to 300  $\mu\text{m}$ , especially preferably of 50 to 200  $\mu\text{m}$ .

A further, preferred, film-material is Barex® (BP Chemicals), a copolymer of acrylonitrile and butadiene.

Barex can be obtained by graft polymerisation from 73-77 parts acrylonitrile and 23-27 parts methyl acrylate in the presence of 8-18 parts of a butadiene-acrylonitrile copolymer which contains a portion of around 70% butadiene.

Barex is the sealable part of a packaging material composite. It is a material of an extraordinarily high chemical inertness and represents an excellent oxygen barrier, it does, however, have a certain degree of permeability to water vapour.

Because of its good barrier properties and chemical resistance, Barex® is particularly suitable for packaging medicaments containing aggressive and/or volatile active substances, e.g. nicotine.

The two packaging material elements may be produced from the same materials or from different materials. Preferably at least one of the two packaging material elements consists of transparent material (e.g. transparent plastic film).

The invention further comprises embodiments wherein one packaging material element or both packaging material elements are coloured in the same or different colours, with the respective colourings possibly being transparent or opaque.

For example, one of the two packaging material elements may be produced from a non-transparent composite material of paper (or cardboard) with plastics (e.g. polyethylene-coated or polyethylene terephthalate-coated papers) and the second packaging material element may be produced from a transparent, colourless or coloured plastic film. To reduce the permeability to air, light and water vapour, it is advantageous that at least one surface of the carrier layer or/and of the cover layer be metallized (e.g. coated with aluminium).

The above-mentioned releasable connections are preferably formed by sealed seams or sealed areas. In particular, peelable film lacquers (peel lacquer) or hot melt adhesives may be used as a sealing medium. Suitable sealing compounds and sealing processes are known to the skilled artisan, e.g. sealing compounds based on polyethylene LD or ethylene-vinyl acetate copolymers. Both heat-sealing methods and cold-sealing methods are suitable.

Preferably, the peelable connection is formed by heat-sealing at temperatures in the range between 50 °C and 250 °C, especially 50 to 200 °C, with the use of hotmelts.

The sealed seams or sealed areas preferably have a width of 0.1 mm to 10 cm, especially 1 mm to 2 cm, and they preferably extend over the entire length or width of the packaging material elements. To make opening of the package even more difficult, at least one of the sealed seams may be configured so as to be of a larger width than the remaining sealed seams.

The sealed seams or sealed areas are preferably of a strength (= seal strength) in the range from 1 N/15 mm to 50 N/15 mm, preferably 2 N/15 mm to 20 N/15 mm.

- 5 The above-mentioned structure enabling initial tearing of the packaging material elements may be present in one of the two packaging material elements or in both of them, the latter embodiment being preferred. In the latter case, the structure(s) are preferably adapted to be alike or similar,  
10 and congruent to each other, in both packaging material elements.

The following are preferably suitable as the structures enabling initial tearing of the packaging material element(s): straight cuts; jagged or undulated cuts; perforations, especially perforations consisting of dots and/or cuts arranged one after another; recesses in the material; punchings, especially arrow-shaped, triangular or rhombic punchings; predetermined breaking points.

- 20 The said structure(s) is/are preferably located marginally within the said second surface section, i.e. in the vicinity of the margin (e.g. sealed seam or sealed area) connecting the two packaging material elements, but not within  
25 said margin. The invention, however, also encompasses other embodiments wherein the said structure extends partially into the sealed margin area. However, by no means may the tear-structure run up to the outer edge of the package.

- 30 To facilitate the above-mentioned process of folding or creasing the package, it is advantageous to provide the package with a crease line or fold line, for example by embossing or squeezing. Methods suitable for this purpose are known to those skilled in the art.



The said structure, or at least one of the said structures, is preferably arranged such that - starting from the interior area of the second surface section - it intersects the crease line or fold line, for example at a right angle or at an oblique angle, so that the said structure extends on both sides of the crease or fold line. The tear structure should, however, at least reach the crease line or fold line and touch the same.

By designing the tear structure in such a manner that it intersects the crease or fold line as described above, the process of tearing is considerably facilitated, without interfering with the child resistance of the package.

This is significant particularly with regard to the designated use of the package by elderly persons as in that case, too, it has to be ensured that the package can be opened without the aid of tools or other auxiliary means and that opening is possible within a short period and without frustrating attempts.

According to a further embodiment, at least the first packaging material element is formed of a mono- or multilayered film, and that this packaging material element is provided with one or more of the said structures. The second packaging material element releasably connected with said film may in this case be made of a different material (e.g. a plastic moulded part).

According to a preferred embodiment, the packaging according to the invention is configured as a bag which is closed all around and which is preferably flat.

It is furthermore preferred that the two packaging material elements be connected along the entire outer edge of the package by means of an uninterrupted sealed layer or sealed seam.

According to a further embodiment it is provided that the second packaging material element is configured as an open container, an open hollow body, especially a bottle, or a deep-drawn moulded part, depending on the shape and size of the product to be packaged. In this case, too, the second packaging element has a second surface section, as described above. In particular, it is possible to use a thermoformed blister film as the second packaging material element; such films are known to the skilled artisan (e.g. rigid PVC films, cellulose ester films or oriented polystyrene films; in each case of a thickness of 50 to 2000  $\mu\text{m}$ , especially preferably 100 to 1000  $\mu\text{m}$ ).

The base area of the packages may have a variety of sizes and shapes - depending on the size and shape of the products to be packaged; the preferred shape is rectangular or square. The package may also have a circular, elliptical, or an irregular shape. Preferably, the margins of the package are releasably connected with each other at at least two, preferably at least three edges. Furthermore, the said two surface sections of the package may be adapted to be of the same or of a different size. The cavity for receiving the product to be packaged may be divided into several compartments; likewise, two or more cavities for receiving goods to be packaged may be provided in each package.

According to a further embodiment, the two packaging material elements are made of the same material. Both packaging material elements may, for example, be made of transparent or non-transparent material.

A further embodiment provides that the two packaging material elements are made of different materials. For example, one of the elements may be formed from transparent material and the other one from non-transparent material.

Preferably, at least one of the two packaging material elements, preferably the first one, has high tear strength and at the same time low tear propagation strength. In this way it is possible to achieve high protection against unauthorised opening, and facilitation of handling in the case of opening as intended.

To enable or facilitate that the said structure is torn further, it is preferred that the tear strength be a multiple of the tear propagation strength. Preferably, the ratio of tear strength and tear propagation strength is in the range from 2 to 200, especially in the range from 50 to 150. The values indicated relate to the tear strength and tear propagation strength of the two packaging material elements connected with each other.

Tear strength and tear propagation strength can be determined by means of known tensile testing machines (e.g. available from FRANK Prüfgeräte GmbH, D-69488 Birkenau). In such measurements a tear strength of 70 N and a tear propagation strength of 0.5 N was determined, for example; in another case, the tear strength was 95 N and the tear propagation strength 1.5 N, measured in each case at the two packaging material elements which are connected with each other and form the package. The measurements were made on a tensile testing machine of the firm of FRANK by using a sample holder for tear tests (type No. 00740).

On the other hand, care must be taken to ensure that the tear strength is not too low as this would no longer guarantee sufficient protection of the packaged goods, and as there is a risk of the said gripping aids being torn off when opening the package. This can be established by simple tests.

Materials which possess the above-mentioned properties (tear strength, tear propagation strength) are known to the skilled artisan; particularly suitable are polyester films.

5 Especially preferred are packaging materials, especially plastic films, whose tear propagation strength in the longitudinal direction differs from that in the transverse direction. The said structures enabling initial tearing and tear propagation of the packaging material elements are  
10 preferably provided along that direction of the film in which the tear propagation strength is lowest. Depending on the desired design of the package and of the manufacturing plant, the aids for tearing and tear propagation may also be provided in a direction different from that described  
15 above.

In particular, for this purpose, it is possible to use plastic films that have been stretched only in one direction, or have been stretched to a greater extent in the  
20 longitudinal direction than in the transverse direction or vice versa. Films treated in this manner, e.g. polyester films, polystyrene films, polyamide films, polyethylene films or polycarbonate films, are known to those skilled in the art. In this way, tearing of the packaging material  
25 which is as intended is facilitated without impairing the mechanical stability of the gripping tabs.

The packages according to the present invention are preferably characterized in that without the use of tools the  
30 goods packaged therein are not accessible to children; according to an especially preferred embodiment, the packages are child-resistant according to DIN EN 14375 and/or according to ASTM D3475-03a.

35 The package according to the invention may be in the form of a single package; however, it is also provided that two

or more such packages are combined to form a packaging unit, e.g. in the form of a strip or a card. These packages, which are connected with one another, may preferably be present in rolled-up form or folded in the manner of an accordion. Perforation lines may be provided between the individual packages to enable separation of an individual package. For example, about 50 to 500 of such packages may be rolled up, in the form of a dispenser roll, around a winding core. Each of the packages, which are connected with and can be separated from one another, contains a single dose of a pharmaceutical active substance, and each one of these packages possesses the features of a child-resistant package, as described above.

Furthermore, two or more individual packages may also be connected with one another in a radial-symmetric arrangement, whereby a package unit in the form of a dispenser disc is formed, from which the individual packages can be separated one after the other. In this case, too, each of the packages, which are connected with and separable from one another, contains a single dose of an active substance, and each one of these packages possesses the features of a child-resistant package, as described hereinabove.

Preferably, the package units described hereinabove are used together with dispensing devices which are suitable for this purpose and which enable or facilitate separation and removal of the individual packages.

The invention further encompasses the use of the above-described packages for packaging pharmaceutical or cosmetic preparations, or for packaging objects or substances prejudicial to health, preferably for child-resistant packaging of the said preparations or objects.

The process according to the invention for the production of a package and for the packaging of objects has the following steps:

- 5    -    providing a first packaging material element;
- providing a second packaging material element;
- positioning the product to be packaged on one of the two packaging material elements;
- superimposing and connecting the two packaging material elements in such a manner that at least one first  
10    surface section is formed, at the margin or margins of which the two packaging material elements are releasably connected with each other, and whereby at least one cavity is formed between the two packaging material elements which is enclosed on all sides and  
15    serves to receive the product to be packaged, and in such a manner that at least one second surface section is formed which lies outside the said first surface section or adjoins the latter, and at the margin or  
20    margins of which the two packaging material elements are releasably connected to one another;
- providing at least one structure in at least one of the two packaging material elements, said structure extending within the second surface section (12) and  
25    enabling initial tearing of the packaging material element(s).

The above-indicated sequence of the process steps is not obligatory; for example, the structure may be provided already after the first or second of the above-indicated  
30    steps.

It is likewise not necessary that the first packaging material element and the second packaging material element be formed from different packaging material webs. Thus, by  
35    folding a single packaging material web it is possible to

provide two packaging material elements between which the products to be packaged can be positioned.

5 Preferred embodiments of the package according to the invention are three-side-sealed bags and four-side-sealed bags.

10 In the following, the features, details and advantages of the invention will be explained, by way of example, by means of the embodiments schematically represented in the drawings.

Fig. 1: shows a package according to the invention, in plan view;

15 Fig. 2: shows a section in plane (a) of Fig. 1;

Fig. 3: as in Fig. 2, but a different embodiment;

Fig. 4: shows a section in plane (b) of Fig. 1;

Fig. 5: as in Fig. 4, but a different embodiment;

Fig. 6: shows a section in plane (c) of Fig. 1;

20 Fig. 7: as in Fig. 6, but a different embodiment;

Fig. 8: as in Fig. 1; represents the package while it is being torn open;

Fig. 9: as in Fig. 8; shows the package while it is being torn open (continuation of the opening process);

25 Fig. 10: shows a further embodiment of the package according to the invention, in plan view;

Fig. 11: shows different examples of tear structures for tearing open, in plan view;

30 Fig. 12: shows a further embodiment of the package according to the invention, in plan view;

Fig. 13: shows a further embodiment of the package according to the invention, in plan view;

Fig. 14: shows a variant of the embodiment shown in Fig. 13.

Fig. 1 shows a package (10) which - as can be seen from the cross-sections shown in Figs. 2 to 7 - is formed from a first packaging material element (1) and a second packaging material element (2). The package has a first surface section (11), at the margin (21) of which the two packaging material elements (1, 2) are releasably connected with each other; see also Fig. 7 and 8. Within this first surface section, a cavity (4) for receiving the product (5) to be packaged is formed by the two superimposed packaging material elements (see also Figs. 7 and 8). The package (10) has a second surface section (12) which is outside the said first surface section (11) and is adjacent to the latter, and at the margin or margins (22) of which the two packaging material elements (1, 2) are releasably connected with each other (cf. Fig. 2 to Fig. 5), preferably by means of a sealed area or sealed seam. This surface section (12) is formed in a simple manner by projecting packaging material (1, 2) of the first surface section.

Between the first (11) and the second (12) surface section there is a partition (23) wherein the two packaging material elements are likewise connected to each other. Within the second surface section (12) the package is provided with at least one structure (3) - here in the form of a cut - that enables initial tearing of the packaging material elements (1, 2).

The structure(s) (3) may be provided in the direction of line (a) as shown in Fig. 1; however, they may also be provided perpendicularly thereto, i.e. in the direction of line (d), or in an oblique direction.

The length and width of the structure (3) as well as its relative position within the surface of the package may be varied so as to deviate from the example shown in Fig. 1.



In the case of the embodiment shown in Fig. 1, to open the package, the latter is folded roughly along line (d). The structure (3) intersects this line at right angles and extends on both sides of the fold line (d).

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As can be seen from Fig. 2, the two packaging material elements (1, 2) are, in the region of the second surface section (12), connected with each other at their margins (22). The structure (3) is located within the first packaging material element (1), in immediate vicinity to the sealed margin (22).

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Fig. 3 shows an alternative embodiment of the package shown in Fig. 1, with the structure (3) - here in the form of a cut - being provided both in the first packaging material element (1) and in the second packaging material element (2), both cuts being of the same length and located at the same position.

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As can be seen from Fig. 3 and Fig. 4, the two packaging material elements are, in this case, made of materials of different thickness.

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Fig. 5 shows an alternative embodiment of the package represented in Fig. 1, wherein the first packaging material element (1) and the second packaging material element (2) are formed from a single web of material, e.g. from a film-shaped material, by folding the film-shaped material at (24) and releasably connecting it at the margin (22), e.g. by means of a sealed seam.

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Fig. 6 shows a packaged product (5) enclosed in the cavity (4) of the package. The first packaging material element is releasably connected with the second packaging material element (2) at the margins or sealed seams (21).

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Fig. 7 shows an alternative embodiment of the package represented in Fig. 1, wherein a deep-drawn moulded part is used as the second packaging material element (2). Optionally, the first packaging material elements (1) may be a deep-drawn moulded part, or both packaging material elements (1, 2) may be deep-drawn moulded parts.

Figs. 8 and 9 illustrate the procedure of opening, in accordance with the designated use, of the package depicted in Fig. 1. To this end, the package is first folded along line (d), as indicated by the semicircular arrow. Line (d) extends crosswise (i.e. almost perpendicular) to the direction of the structure (3) (line (a) in Fig. 1), which is provided in the form of a cut and which is present in both packaging material elements (1, 2). If the structure (3) extends in another direction than the one shown in Fig. 1, the fold direction is in any case selected such that, if possible, it extends approximately perpendicular to the direction of the structure(s) (3) or in an oblique direction thereto.

By folding along line (d), an open notch (25) is formed in the region of the cut (3). Due to the small tear propagation strength of the material of the packaging material elements (1, 2), the cut (3) can be elongated by further tearing in the direction of arrows (e) shown in Fig. 8. Preferably, the tear propagation strength in direction (d) is larger than that in the direction of the tear structure (3), that is, in the direction of line (a) in Fig. 1.

In this manner, the sealed margin (22), which is located at the upper margin of the package of Fig. 8, can be largely or even entirely separated. This state is shown in Fig. 9. By separating the sealed margin, two exposed edges of the packaging material elements (1, 2) have been created which may serve as gripping aids or gripping tabs and which can

be torn away from each other in the direction of the two arrows. In this manner, the two packaging material elements (1, 2) can be separated from each other completely or in any case up into the area of the packaged product (5), so that the latter becomes accessible and can be removed.

Fig. 10 shows a further embodiment of the package according to the invention, wherein the packaging material elements (1, 2) are releasably connected to each other in the region of the second surface section (12) along an outer edge, by means of a sealed area or sealed seam (22). The sealed seam (22) is separated - as described above - so that the packaging material elements (1, 2) are no longer connected with each other in the surface section (12), but form individual gripping tabs by means of which the packaging material elements (1, 2) can be completely detached from one another.

Fig. 11 shows structures (3) in the form of a perforation (3a), in the form of a sequence of V-shaped punchings (3b) arranged one after another, in the form of rhombic punchings (3c); all of which are arranged in the direction of line (a) shown in Fig. 1; as well as structure (3) in the form of a cut (3d) or perforation (3e), each arranged in the direction of line (d) shown in Fig. 1; in the case of the structures (3d, 3e) the package is, upon opening, folded in the direction of line (a) shown in Fig. 1, for example (corresponding to the procedure according to Figs. 8 and 9; see above).

Fig. 12 shows a modification of the embodiment represented in Fig. 1, wherein the crease line (d) runs along an outer edge of the second surface section (12), but within said surface section. The tear structure (3) intersects line (d) at right angles and extends from the interior of the second surface section (12) up into the sealed margin area (22'). By folding the package along crease line (d), the tear

structure (3) is exposed and the package can be opened as described in Fig. 8.

Fig. 13 shows a modification of the embodiment shown in Fig. 1, wherein the partition (23) projects, in the form of a protrusion or a tongue, into the region of the second surface section (12). This protrusion may be in the shape of a trapezium - as shown - but it may also be adapted to be round or have a convex curvature (e.g. in the shape of a segment of circle, or parabolic), or have the shape of a triangle. The protrusion may also - as shown - be axially symmetric; as an alternative, asymmetric or irregular geometric shapes are also possible.

Tearing open the package, i.e. detaching the two packaging material elements (1, 2) and tearing them away from each other, is thereby facilitated. Since the width of the partition (23), relative to the direction of tearing open (arrow e), is initially small and then gradually increases, tearing open can be performed with less expenditure of force as compared to the embodiments wherein the partition is of a constant width.

By designing the partition in this manner it is in addition possible to reduce the total length of the package, or to increase the extent of the first surface section (11), thus creating an enlarged space (4) for receiving the product to be packaged (Fig. 14).

## CLAIMS

1. Non-reclosable package (10) for products which are  
5 prejudicial to health, particularly pharmaceutical products, comprising a first packaging material element (1) and a second packaging material element (2), wherein

- the two packaging material elements (1, 2) are arranged so as to lie on top of each other;
- 10 - the package (10) has at least one first surface section (11), at the margin or margins (21) of which the two packaging material elements (1, 2) are releasably connected with each other, whereby at least one cavity (4), which is enclosed on all sides and serves to receive the product (5) to be packaged, is formed between the two packaging material elements;
- the package has at least one second surface section (12) which lies outside the said first surface section (11) or adjoins the latter, and at the margin or margins (22) of which the two packaging material elements (1, 2) are releasably connected with each other; and
- 20 - wherein at least one of the two packaging material elements (1, 2) is provided with at least one structure (3) which extends within the second surface section (12) and enables the packaging material element(s) to be torn.

2. Package according to claim 1, characterized in that the said releasable connections of the packaging material  
30 elements (1, 2) are formed by sealed seams or sealed areas.

3. Package according to claim 1 or 2, characterized in that the two packaging material elements (1, 2) are each provided with at least one structure (3, 3'), said structure(s) preferably being adapted to be alike or similar,  
35 and congruent to one another.

4. Package according to any one of the preceding claims, characterized in that the structure(s) (3) and/or the structure(s) (3') are selected from the following group of structures: straight cuts; jagged or undulated cuts; perforations, especially perforations consisting of dots and/or cuts arranged one after another; recesses in the material; punchings, especially arrow-shaped, triangular or rhombic punchings; predetermined breaking points.

5. Package according to any one of the preceding claims, characterized in that the structure(s) (3) and/or the structure(s) (3') are arranged within the surface sections (11) or (12), near or at the margin, but not within the margin (21, 22) which connects the two packaging material elements.

6. Package according to any one of the preceding claims, characterized in that it has at least one crease line or fold line (d) which at least partially extends within the second surface section (12), or at an outer edge of that surface section.

7. Package according to claim 6, characterized in that the structure (3) or at least one of the structures (3) intersects the crease line or fold line (d), preferably at right angles.

8. Package according to any one of the preceding claims, characterized in that between the first surface section (11) and the second surface section (12) there is a partition (23), in the region of which the packaging material elements (1, 2) are releasably connected with one another.

9. Package according to claim 8, characterized in that the width of the partition (23) increases relative to the

tear-open direction (e) of the package, preferably in such a manner that the partition extends with a curvature or with the tip of a triangle or in the shape of a trapezium into the second surface section (2).

5

10. Package according to any one of the preceding claims, characterized in that at least the first packaging material element (1) is formed from a monolayered or multilayered film, and that this packaging material element (1) is provided with one or more structures (3).

10

11. Package according to any one of the preceding claims, characterized in that it is configured as a bag which is closed all around.

15

12. Package according to any one of claims 1 to 10, characterized in that the second packaging material element (2) is selected from the group comprising containers, hollow bodies, especially bottles, and deep-drawn moulded parts.

20

13. Package according to any one of the preceding claims, characterized in that it has a rectangular or square surface shape, with the margins being connected with one another at least at two edges, particularly at least at three edges, preferably by sealed seams.

25

14. Package according to any one of the preceding claims, characterized in that at least one of the two packaging material elements, preferably the first packaging material element (1), has high tear strength and at the same time low tear propagation strength, the ratio of tear strength to tear propagation strength preferably being in the range from 2 to 200, especially preferably in the range from 50 to 150.

30

35

15. Package according to any one of the preceding claims, characterized in that the two packaging material elements are connected along the entire outer margin of the package by an uninterrupted sealed layer or sealed seam.

5

16. Package according to any one of the preceding claims, characterized in that the product packaged therein is not accessible to children without tools, more particularly, that the package is child-resistant according to DIN EN 14375 and/or according to ASTM D3475-03a.

10

17. Use of a package according to any one of the preceding claims for packaging pharmaceutical or cosmetic preparations or of objects or substances which are prejudicial to health, preferably for child-resistant packaging of the said preparations, objects or substances.

15

18. Process for manufacturing a package and for packaging objects, said process comprising the following steps:

20

- providing a first packaging material element (1);
- providing a second packaging material element (2);
- positioning the product (5) to be packaged on one of the two packaging material elements;
- 25 - superimposing and connecting the two packaging material elements (1, 2) in such a manner that at least one first surface section (11) is formed, at the margin or margins (21) of which the two packaging material elements (1, 2) are releasably connected with each other, and whereby at least one cavity (4) is
- 30 formed between the two packaging material elements which is enclosed on all sides and serves to receive the product (5) to be packaged, and in such a manner that at least one second surface section (12) is
- 35 formed which lies outside the said first surface section (11) or adjoins the latter, and at the margin or



margins (22) of which the two packaging material elements (1, 2) are releasably connected to each other; - providing at least one structure (3) in at least one of the two packaging material elements (1, 2), said structure extending within the second surface section (12).

19. Process according to claim 18, characterized in that the packaging material elements are connected with one another by means of sealed seams or sealed surfaces, especially by utilizing a peelable seal lacquer.

20. Process according to claim 18 or 19, characterized in that the two packaging material elements (1, 2) are each provided with at least one structure (3, 3'), said structure(s) preferably being configured so as to be alike or similar and preferably being arranged to be congruent to one another.

21. Process according to any one of claims 18 to 20, characterized in that the structure(s) (3) and/or the structure(s) (3') are selected from the following group of structures: straight cuts; jagged or undulated cuts; perforations, especially perforations consisting of dots and/or cuts arranged one after another; recesses in the material; punchings, especially arrow-shaped, triangular or rhombic punchings; predetermined breaking points.

22. Process according to any one of claims 18 to 21, characterized in that the structure(s) 3 or/and the structure(s) (3') are arranged within the surface sections (11) or (12) near the margin but not within the margin (21, 22) which connects the two packaging material elements.

23. Process according to any one of claims 18 to 22, characterized in that the packaging (1, 2) is produced in the form of a bag which is closed all around.

5 24. Process according to claims 18 to 22, characterized in that the second packaging material element (2) is selected from the group comprising containers, hollow bodies, especially bottles, as well as deep-drawn moulded parts.

10 25. Process according to any one of claims 18 to 24, characterized in that the margins of the packaging material elements (1, 2) are releasably connected with one another at at least two edges, particularly at at least three edges, preferably by sealed seams.

15 26. Process according to any one of claims 18 to 25, characterized in that the two packaging material elements are connected along the entire outer margin of the package by means of an uninterrupted sealed layer.

20 27. Process according to any one of claims 18 to 26, characterized in that at least one crease line or fold line (d) is formed which at least partially extends within the second surface section (12) or along an outer edge of said surface section.

25 28. Process according to claim 27, characterized in that the structure (3) or at least one of the structures (3) is provided in such a manner that it intersects the crease line or fold line (d), preferably at right angles.

30

FIG. 1

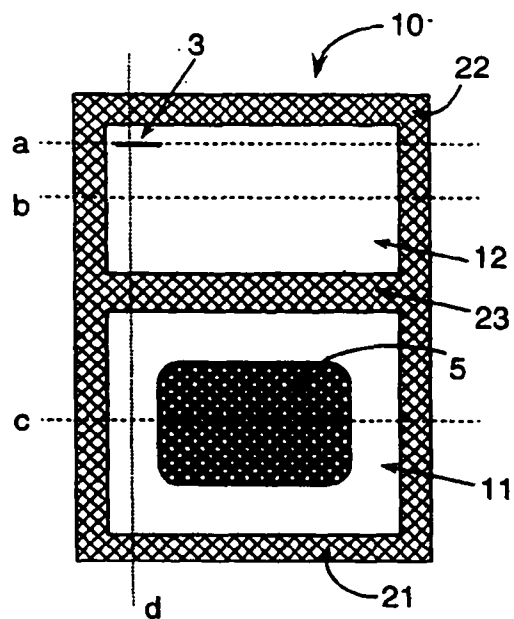


FIG. 2

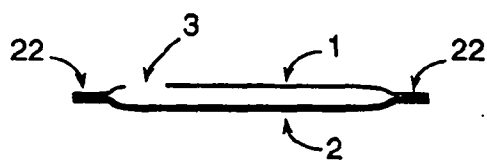


FIG. 3

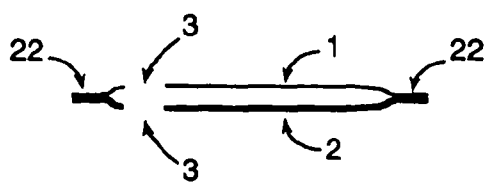


FIG. 4

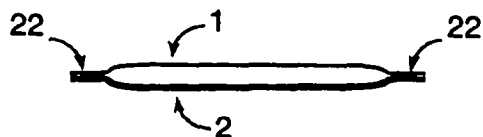


FIG. 5

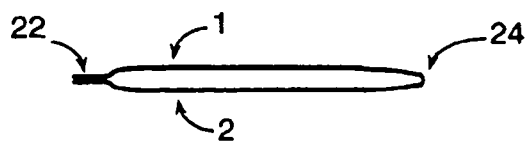


FIG. 6

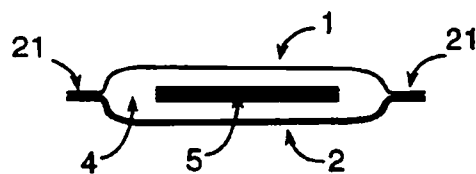


FIG. 7

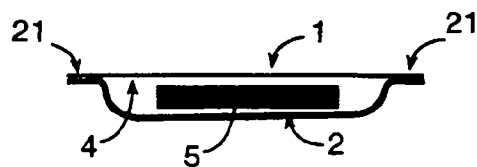


FIG. 8

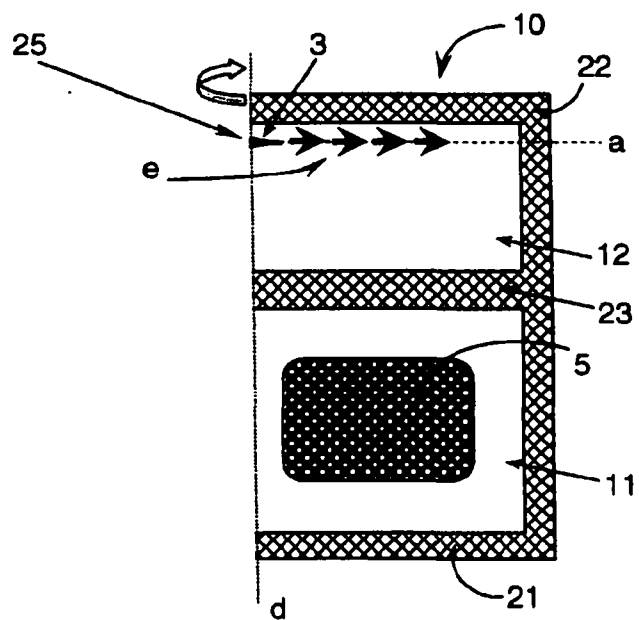


FIG. 9

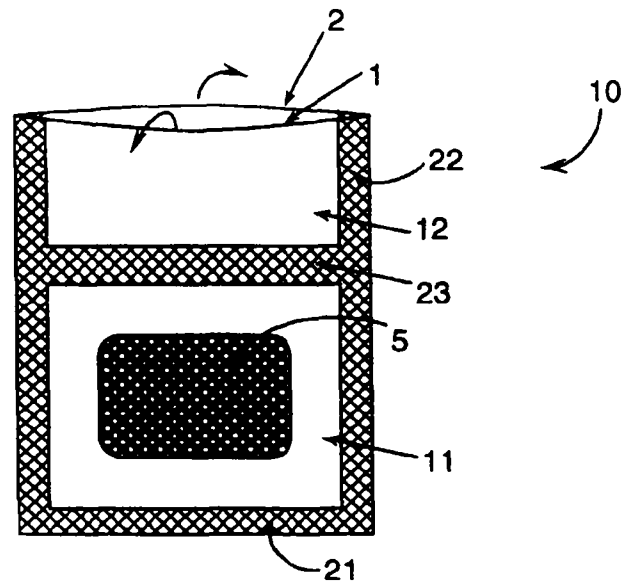


FIG. 10

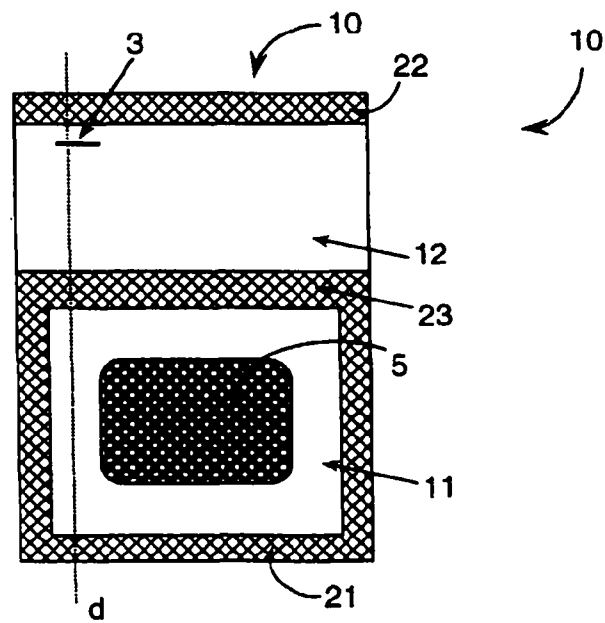


FIG. 11

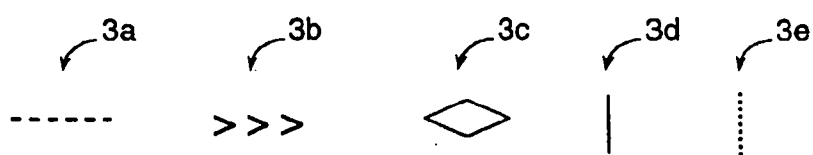


FIG. 12

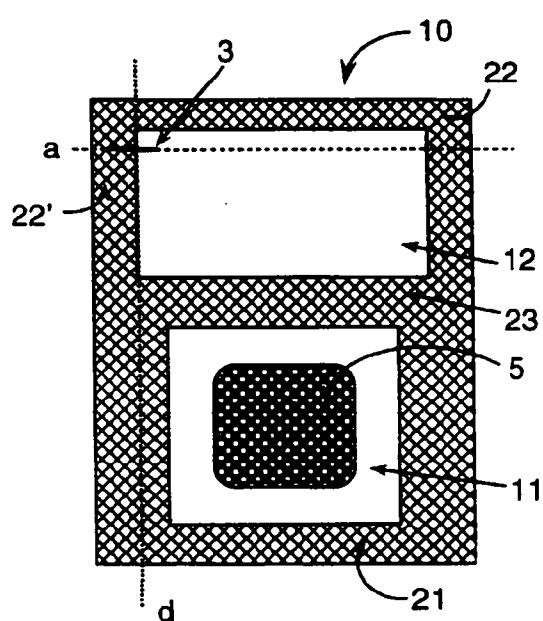


FIG. 13

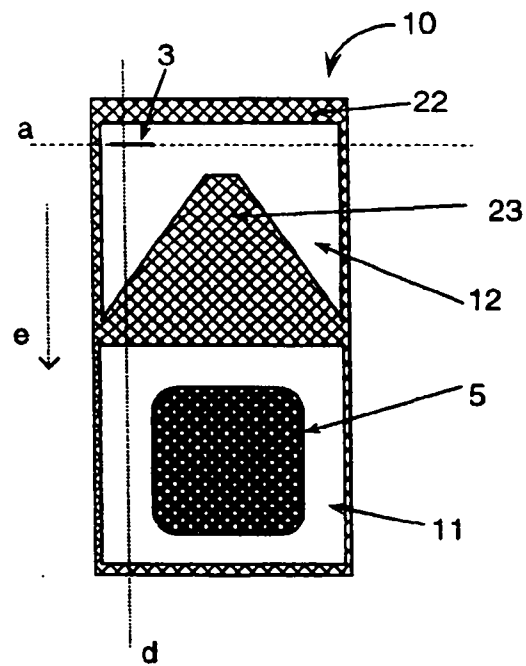


FIG. 14

