

**Dispenser for semi-solid pharmaceutical or cosmetic
preparations in a pouch-type package**

(Description)

5

Technical field

The invention relates to a dispenser for semi-solid
pharmaceutical and cosmetic preparations in a pouch-
10 type package, the dispenser being composed of a
parallelepiped housing which is provided with a slide
and an associated smoothing roller and which receives a
pouch-type package, preferably a tubular bag or four-
edge sealed bag, containing a pharmaceutical or
15 cosmetic preparation.

By means of the dispenser, a method is made available
by which said preparations can be smoothed out of a
pouch-type package.

20

The pharmaceutical preparations smoothed out by means
of the dispenser and by means of the corresponding
method can contain gestagens and/or estrogens and/or
androgens and can be used for fertility control and
25 also for hormone replacement therapy.

Prior art

Transdermal pharmaceuticals include, among other forms,
30 semi-solid preparations, such as gels and creams in
particular. These preparations can be introduced into
tubes and dosed dispensers acting as multi-dose
containers, or they are introduced as single doses into
tubular bags or four-edge sealed bags. Whereas four-
35 edge sealed bags are often used for cosmetic products,
in particular for samples, tubular bags are preferably
used for pharmaceutical purposes. This is because of
the special requirements for complete removal of the

contents and for reproducibility of this procedure,
which is not legally regulated in the case of cosmetic
products. These requirements are better met by long
tubular bags than by flat rectangular or square sealed
5 bags.

A typical tubular bag in the form of a so-called stick
pack is used for the product called Testogel, which is
marketed by Jenapharm GmbH & Co. KG in Germany.

10

A disadvantage of this form of application is the
difficulty involved in removing the entire contents,
since this requires the bag to be manually smoothed and
pressed out several times, in the same way as a tube of
15 toothpaste.

This is especially the case when the user has only one
hand free to do this, for example if the gel is to be
applied with the right hand to the left upper arm.

20

Disclosure of the invention

The object of the present invention is therefore to
make it possible for a semi-solid pharmaceutical or
25 cosmetic preparation to be smoothed out of a pouch-type
package in a user-friendly way with a single smoothing
movement.

According to the invention, the object is achieved with
30 a dispenser for semi-solid pharmaceutical or cosmetic
preparations in a pouch-type package (3), said
dispenser being composed of a parallelepiped housing
(1)

- with a housing top (7), provided with a movable
35 support face, called slide (4),
- with a housing bottom (13),
- with three closed side parts arranged at a 90° angle
between housing top (7) and housing bottom (13), with

- 3 -

two mutually opposite side parts that are of equal length and are longer than the third side part, called the housing rear wall.

- An opening (2) for receiving the pouch-type package (3), preferably a tubular bag or four-edge sealed bag, is located opposite the housing rear wall.

- A slit-shaped recess (17) is arranged on the housing rear wall above and horizontal to the housing bottom (13), and a planar locking mechanism (8) or locking plate (22) is arranged displaceably on the outside face of the housing rear wall.

- Slit-shaped openings (6) are arranged along both long edges of the housing top (7) and serve as guide channels for the slide (4).

- A smoothing roller (9) is secured in the housing (1) itself and is connected to the slide (4) and is moved by the latter.

According to the invention, the pharmaceutical active substance in the semi-solid pharmaceutical preparation can be at least one steroid hormone from the group of gestagens and/or estrogens and/or androgens.

Moreover, according to the invention, the gestagen and/or estrogen and/or androgen can be dienogest, drospirenone, levonorgestrel, gestodene, estradiol, ethynyl estradiol, estradiol valerate, DHEA, testosterone, testosterone undecanoate [efment].

According to the invention, in a method for smoothing semi-solid preparations or cosmetic preparations out of a pouch-type package (3), preferably a tubular bag or four-edge sealed bag, with the dispenser in the form of a parallelepiped housing (1), as described in detail in the above lines,

- the pouch-type package (3), in which the sealed seam (26) on the narrow side remote from the tear-off opening has a width of more than 5 mm, preferably of

- 4 -

- more than 7 mm, and/or the sealed seam (26) preferably has recesses (27),
- is pushed into a slit-shaped recess (17) on the housing rear wall as far as the limit stop (18),
 - 5 - is locked by means of a displaceable locking plate (22),
 - and the slide (4) connected to the smoothing roller (9), for smoothing out the pharmaceutical or cosmetic preparation, is moved in the slit-shaped openings (6) =
 - 10 guide channels on the housing top (7).

Semi-solid preparations are preferably gels and creams.

- The width, according to the invention, of the sealed
- 15 seams of the pouch-type package permits complete smoothing-out of the middle part of the bag.

- Moreover, specific recesses on the sealed seam lying opposite the bag opening permit good adjustment of the
- 20 pouch-type package in the dispenser according to the invention and in the method according to the invention.

- The advantage of the dispenser according to the invention and of the method according to the invention
- 25 for smoothing the semi-solid preparation out of the pouch-type package lies in the fact that

- the dispenser has a surprisingly simple structure, since it can be assembled from as little as just four individual parts,
- 30 - all parts can be made from plastic in conventional injection molding techniques; even adhesive connections are not necessary.
- Adhesive connections of the parts are not necessary,
- with the result that the dispenser can be produced
- 35 inexpensively,
- the dispenser is designed to be used with just one hand and
- the smoothing-out procedure is especially

reproducible in respect of the amount that is smoothed out.

Description of the figures

5

The reference numbers appearing in the figures, in the patent claims, in the description and in the abstract designate the following:

- 1 housing
- 10 2 opening
- 3 pouch-type package
- 4 slide
- 5 ribbed surface
- 6 slit-shaped openings
- 15 7 housing top
- 8 locking mechanism
- 9 smoothing roller
- 10 guide pin
- 11 web-shaped overhangs
- 20 12 webs
- 13 housing bottom
- 14 rear sealed seam of pouch-type package
- 15 smoothing roller in starting position
- 16 smoothing roller in end position
- 25 17 slit-shaped recess
- 18 limit stop
- 19 middle part of pouch-type package
- 20 nose-shaped extension of bag volume
- 21 angular retainers
- 30 22 locking plate
- 23 upper abutment lug
- 24 lower abutment lug
- 25 edge of sealed seam
- 26 sealed seam
- 35 27 recess
- 28 remaining portions of sealed seam
- 29 = 20 nose-shaped extension of pouch-type package
- 30 perforation in sealed seam

Figure A

An elongate, parallelepiped housing 1, depicted in a simplified manner, has, on one narrow face, an opening 2 through which a pouch-type package 3 filled with a semi-solid preparation, preferably a tubular bag in stick-pack format, can be introduced lengthwise, and the removal side of the bag remains protruding from the opening 2.

10

Located on the housing top 7, there is a slide 4 which can be operated manually, preferably with the thumb, which has a partially ribbed surface 5 for better adherence and which is connected via two slit-shaped openings 6 to a smoothing roller 9 (not shown in this figure) lying inside the dispenser. The slide 4 can be displaced freely in the slit-shaped openings 6 (guide rails) along the middle part of the housing top 7. The end face remote from the opening 2 of the housing covers a locking mechanism 8, which is shown in more detail in the following figures.

20

Figure B

Figures B1 and B2 show only the slide 4 with the ribbed surface 5, the smoothing roller 9 moved by it, and parts of the housing 1, on the one hand in a perspective view, and, on the other hand, in cross section.

25

Figure B1 shows the smoothing roller 9 mounted in the slide 4, which is of T-shaped construction. The lateral guide pins 10 are preferably made in one piece with the smoothing roller, for example by turning or injection molding.

30

The diameter of the smoothing roller 9 is advantageously not greater than the width of the sealed seam 26. The U-shaped cutouts in the slide 4 serve as

35

slide bearings of the smoothing roller 9 and have web-shaped overhangs 11 on both sides. The overhangs ensure that the roller, upon slight downward displacement, does not immediately slip out of this slide bearing.

5

Webs 12 are also provided on the inner faces of the T-shaped slide 4 on both sides, their function in conjunction with the housing 1 being made clear in Figure B2.

10

Figure B2 shows a cross section through the housing 1 in the middle area, at the location where the slide 4 is presently situated. The cover face of the slide with the ribbed surface 5 is connected by the side walls to the housing interior via the guide rails 6. The webs 12 of the side parts of the slide 4 slide along the inner face of the housing 1 and keep the slide 4 freely displaceable in the track defined by the guide rails, without the slide 4 being able to fall out from the top.

While the dispenser is held enclosed in one hand, the slide 4 can be operated by the thumb of this hand. The length of travel of the slide 4 preferably corresponds to the distance that can be easily covered by the thumb. This length of travel is 3 - 10 cm, particularly preferably 4 - 7 cm.

The webs 12 are preferably of triangular profile. When the housing 1 and slide 4 are made from elastic synthetic materials, it is possible for the separately produced slide 4 to be pressed from the top downward into the guide rails during assembly of the dispenser, until the triangular webs 12, upon elastic deformation of the housing 1, pass through the guide rails. Thereafter, the slide 4 is permanently fixed on the housing 1 in the position ready for use.

The guide rails, also to be regarded as a free space between the webs 12 and the middle part of the housing top 7, define the mechanical play of the smoothing roller 9 relative to the housing bottom 13.

5

This play is chosen such that the rear sealed seam 14 of the pouch-type package can easily pass flat between the smoothing roller 9 and housing bottom when it is inserted into the dispenser. On the other hand, the
10 smoothing roller 9 and the slide 4 are designed such that, in the fully depressed state, the roller in the empty housing 1 without pouch-type package 3 can be pressed fully against the housing bottom 13.

15 **Figure C**

Figure C shows a cutaway view of the interior of the dispenser, with the stick pack inserted and with the slide 4 and parts of the housing 1 omitted. The smoothing roller 9 is shown here in the starting
20 position 15 and, for illustration purposes, also in the end position 16, although only one smoothing roller is provided.

Upon insertion into the housing 1 through a slit-shaped
25 recess 17 on the rear wall of the housing, the stick pack is correctly positioned by being pushed through this recess as far as the limit stop 18. The limit stop 18 is ensured by the particular configuration of the rear edge of the sealed seam, which is explained in
30 more detail in Figure E.

The widths of the sealed seams at the front and rear ends of the stick pack are made particularly wide, in order to ensure that the smoothing roller 9 in the
35 starting position 15 can be fitted in place in front of the filled middle part of the stick pack 19, in order then to arrive in the area of the front sealed seam in the end position 16 of the smoothing roller after the

entire middle part of the bag has been squeezed out. Only the nose-shaped extension 20 of the bag volume remains as a small dead volume that cannot be squeezed out completely by the smoothing roller.

5

Figure D

To ensure that the stick pack is not pushed out of the housing 1 during the smoothing-out with the smoothing roller 9, it can be locked mechanically on the rear face of the housing. Figures D1 to D3 illustrate the locking mechanism.

The rear sealed seam of the stick pack is pushed partially through the slit-shaped recess 17 in the rear wall of the housing, where it emerges from the recess 17 in the rear view in Figure D1. Guided in two angular retainers 21 on the rear wall of the housing, there is a displaceable locking plate 22 (guide angle) with an upper abutment lug 23 and a lower abutment lug 24 on both sides. After the stick pack in the position according to Figure D1 has been guided through the recess, the locking plate 22 is pushed down, so that the edge 25 of the sealed seam through the recess is bent down at a right angle and is clamped between the locking plate 22 and the housing 1, as is shown in Figure D2.

Means (not shown here) that increase the adhesion resistance and sliding resistance can be arranged on the inner face of the locking plate 22 and of the housing bottom 13, for example roughened surfaces, ribbed surfaces, grained surfaces or rubber linings.

For the purpose of clearer illustration, the figure shows, in a perspective view, an intermediate state between opened and closed locking plate 22, where the edge 25 of the sealed seam already protrudes with

partial clamping. The locking plate 22 is pressed firmly onto the housing 1 by the guide angles 21.

The lower abutment lugs 24 preferably have a triangular design. When the housing 1 and locking plates 22 are made of elastic synthetic materials, it is possible for the separately produced locking plate 22 to be pressed from the top down between the guide angles during assembly of the dispenser, until, with elastic bending of the guide angles 21, the triangular lower abutment lugs 24 pass through the latter. Thereafter, the locking plate 22 is fixed permanently on the housing 1 in the position ready for use.

15 **Figure E**

Figures E1 and E2 show suitable embodiments of stick packs/tubular bags for use with the dispenser according to the invention.

20 These stick packs are firstly characterized by a particularly wide sealed seam 26. Recesses 27 are arranged 27 at the rear edge of the sealed seam. The remaining portions 28 of the rear edge are used for passage through the slit-shaped recess 17 in the rear face of the housing and for fixing to the locking plate. By contrast, the recesses form the abutment area in the housing interior, in order to avoid the stick pack being pushed too far into the dispenser.

30 The nose-shaped extension of the pouch-type package 29 = 20 which is customary in stick packs containing semi-solid preparations, and which is produced by corresponding sealing, is situated in the front area. This nose-shaped extension is made particularly long in the stick packs specially designed for the dispenser, and it is also narrow in order to ensure that the dead volume after emptying with the smoothing roller 9 can be kept low.

The positioning of the nose-shaped extension of the application nose in the middle according to Figure E1 can be advantageous for avoiding contamination of the dispenser when material is dispensed through a lateral application nose (Figure D2).

The application noses can be opened by tearing along the perforations 30 provided.

10

The illustrated version of the dispenser represents the preferred solution to the object of the invention and can be supplemented by further refinements, as may arise from the requirements of industrial production or packaging.

15

In particular, any visible designs have been omitted in the drawing in favor of a pure representation of the features that are relevant to the function.

20

A particular design in terms of shape and color is of course recommended for such an article and can be provided in a manner familiar to a person skilled in the art. This relates in particular to the outer housing 1 and the slide 4.

25

While the outward design otherwise remains the same, the structure can be simplified, for example by omitting the smoothing roller in favor of a cylinder connected fixedly to the slide 4 or of a rounded but not rotatable smoothing element able to slide relative to the bag. Although this simplification would lead to poorer sliding and smoothing properties of the slide 4, these impaired properties would still be sufficient to ensure the dispenser function according to the invention. A refinement to the design could involve a spring suspension of the slide or of the roller sitting on the slide, with the aim of generating a resistance

35

30

that the user can feel when depressing the slide or the roller, resulting in the user being able to sense a specific action point.

Claims

1. A dispenser for semi-solid pharmaceutical or
5 cosmetic preparations in a pouch-type package (3),
characterized in that a parallelepiped housing (1)
is composed of
- a housing top (7), provided with a movable
support face, called slide (4),
 - 10 - a housing bottom (13),
 - three closed side parts arranged at a 90° angle
between housing top (7) and housing bottom (13),
with two mutually opposite side parts that are of
equal length and are longer than the third side
15 part, called the housing rear wall, and an opening
(2) for receiving the pouch-type package (3),
preferably a tubular bag or four-edge sealed bag,
being located opposite the housing rear wall,
 - a slit-shaped recess (17) arranged on the
20 housing rear wall above and horizontal to the
housing bottom (13),
 - a planar locking mechanism (8) or locking plate
(22) arranged displaceably on the outside face of
the housing rear wall,
 - 25 - two slit-shaped openings (6) arranged along both
long edges of the housing top (7) and serving as
guide channels for the slide,
 - and a smoothing roller (9) arranged in the
housing (1) and movable by means of the slide (4).
 - 30
2. The dispenser as claimed in claim 1, characterized
in that the pharmaceutical active substance in the
semi-solid pharmaceutical preparation is at least
one steroid hormone from the group of gestagens
35 and/or estrogens and/or androgens.
3. The dispenser as claimed in claims 1 and 2,
characterized in that the gestagen and/or estrogen

and/or androgen is dienogest, drospirenone, levonorgestrel, gestodene, estradiol, ethynyl estradiol, estradiol valerate, DHEA, testosterone, testosterone undecanoate [efment].

5

4. A method for smoothing semi-solid pharmaceutical or cosmetic preparations out of a pouch-type package (3), preferably a tubular bag or four-edge sealed bag, characterized in that, in a dispenser
- 10 in the form of a parallelepiped housing (1) composed of
- a housing top (7), provided with a movable support face, called slide (4),
 - a housing bottom (13),
 - 15 - three closed side parts arranged at a 90° angle between housing top (7) and housing bottom (13), with two mutually opposite side parts that are of equal length and are longer than the third side part, called the housing rear wall, and an opening
 - 20 (2) for receiving the pouch-type package (3) being located opposite the housing rear wall,
 - a slit-shaped recess (17) arranged on the housing rear wall above and horizontal to the housing bottom (13),
 - 25 - a planar locking mechanism (8) or locking plate (22) arranged displaceably on the outside face of the housing rear wall,
 - two slit-shaped openings (6) arranged along both long edges of the housing top (7) and serving as
 - 30 guide channels for the slide,
 - and a smoothing roller (9) arranged in the housing (1) and movable by means of the slide (4), the pouch-type package (3), in which the sealed seam (26) on the narrow side remote from the tear-off opening has a width of more than 5 mm,
 - 35 preferably of more than 7 mm, and/or the sealed seam (26) preferably has recesses (27),
 - is pushed into a slit-shaped recess (17) on the

housing rear wall as far as the limit stop (18),
- is locked by means of a displaceable locking
plate (22),
- and the slide (4), connected to the smoothing
5 roller (9) for smoothing out the pharmaceutical or
cosmetic preparation, is moved along the slit-
shaped openings (6) serving as guide channels on
the housing top.

10 5. The method as claimed in claim 4, characterized in
that the pharmaceutical active substance in the
semi-solid pharmaceutical preparation is at least
one steroid hormone from the group of gestagens
and/or estrogens and/or androgens.

15

6. The method as claimed in claims 4 and 5,
characterized in that the gestagen and/or estrogen
and/or androgen is dienogest, drospirenone,
levonorgestrel, gestodene, estradiol, ethynyl
20 estradiol, estradiol valerate, DHEA,
testosterone, testosterone undecanoate [efment].