

Medical plaster for application on the skin
(Description)

Technical field

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The invention relates to a medical patch for use on the skin and to a process for preparing it. This system consists of an adhesive interior, an exterior surrounding the interior, said exterior being designed to be non-adhesive.

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Prior Art

It is known that, after they have been worn, medical patches tend to leave a distinct dark ring on the skin. This phenomenon increases with the period of application and takes on particularly problematic forms if patches are worn for longer than 3 and up to 7 days. This is the case in particular with transdermal active substance patches, which in the field of hormone replacement or hormonal contraception are frequently applied for 7 days at a time.

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The dirt ring forms essentially as a result of textile fibres and particles of dirt and skin adhering to the adhesive layer's cut edge, which is open at the margin. Depending on surface energies and the nature of the adhesive, it is even possible for particles to be taken up into the adhesive layer as a result of adhesive flow. A further, particularly intensifying factor is that, during prolonged wear on the skin, patches may be displaced by mechanical stress, this displacement being accompanied additionally by the emergence at the margin of adhesive, which increases the dirt ring through particle adhesion. The detachment of the patches, which likewise begins from the margin, offers a further area for dirt to deposit following a prolonged time of application.

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When the patches are removed, more or less large portions of the dirt ring formed remain on the skin. They are usually difficult to rub off mechanically and
5 do not disappear until after several days, as a result of customary body care.

Although it has been possible to obtain certain improvements by increasing the cohesion of the medical
10 pressure-sensitive adhesives (PSAs) - for example, by admixing long-chain polymers or by chemical crosslinking - the increased cohesion and reduced plasticity frequently also result in a reduction in long-term adhesiveness. Only a partially flowable PSA
15 with aggressive adhesion can ensure sticking to the skin for up to a week. In this area of mutually contradictory requirements imposed on the medical PSA, it has to date been impossible to avoid the formation of aesthetically unappealing dirt rings in the course
20 of long-term application.

The patent literature has disclosed medical patch systems having different kinds of adhesive regions.

25 The U.S. patent US 4,664,106 describes a wound plaster which is protected by a detachable protective film and possesses an adhesive-free marginal region which is removed on use.

30 The U.S. patent US 5,690,610 describes an adhesive compression material for checking bleeding, the body being an adhesive-free pressure plate. This pressure plate is mounted between pad and skin-contact adhesive layer and corresponds in its dimensions to said
35 adhesive layer. A non-adhesive region in use is not disclosed.

The U.S. patent US 5,599,289 discloses a medical patch system which possesses a support web, an adhesive

material lying above this support web, and a release ply lying above the adhesive. A non-adhesive outer region in use is not disclosed.

5 The DE patent DE 743 775 describes a wound plaster with a plaster base made of sterile material and with an adhesive layer. Up until the time of use, gauze strips are arranged in such a way that adhesive layer and sterile layer are protected simultaneously. The patent
10 considers incomplete attachment of the patch, and hence marginal regions which are indirectly non-adhering, to constitute an insecurity and disadvantage.

Description of the invention

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It is an object of the invention, therefore, to overcome the aforementioned disadvantages of conventional medical patches, particularly the problem of dirt ring formation.

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According to the invention the object is achieved by means of a medical patch for use on the skin, wherein the contact area to the skin has a pressure-sensitive adhesive interior and also an exterior surrounding the
25 interior. Said exterior has been designed so as to be non-adhesive on its skin-facing surface.

For patches, this is most appropriately realizable by the introduction of an additional layer in the patch's
30 marginal zone, preferably by means of a narrow film integrated at the margin and referred to below as marginal film.

In application, this marginal film is situated between
35 the pressure-sensitive adhesive layer of the patch, on the skin side, and the skin, thereby preventing contact of the adhesive with the skin in this zone.

In the case of active substance patches the marginal film should preferably be composed of a material which is virtually impermeable to the active substance or substances present. Otherwise active substance is delivered from the patch to the skin via the marginal zone as well; such delivery, owing to the contact of the marginal zone with the skin's surface, which for constructional reasons is not very reproducible, and additionally owing to the delivery of active substance taking place unavoidably with divergent kinetics via the marginal film in relation to the central adhesive layer, is undesirable. For these reasons, particularly suitable materials for the marginal film are polyethylene terephthalate (PET), polyvinyl chloride (PVC), polyvinylidene chloride (PVDC) or polyvinyl chloride-polyvinylidene chloride copolymers (e.g. Saran®) and polyacrylonitrile (e.g. Barex®). PET (e.g. Hostaphan®) is particularly preferred on account of the multiplicity of grades available commercially, in particular in the region of very thin films.

Any remanent delivery of active substance through the marginal zone that there may be, depending on the barrier action of the marginal film, is preferably lower by a factor of at least 10, more preferably lower by a factor of at least 100, than the delivery of active substance per unit area over the pressure-sensitive adhesive region of the patch.

An optimum range for the width of the marginal zone to be provided has been determined: excessive widths lead to a margin which is very easily bent around and pulled along by mechanical contact with the clothing or other foreign bodies, as a result of which there may be premature detachment of the patch. Too narrow a margin, by contrast, is on the one hand difficult to realize technically with sufficient symmetry and reproducibility and on the other hand offers inadequate protection of the interior area of adhesive against

particle contamination from outside, in relation to the production complexity.

5 It has been found that the margin width ought to be in the range from 0.5 to 5 mm, preferably in the range from 0.75 to 3 mm and with particular preference in the range from 1 to 1.5 mm. The optimum figure, however, is also dependent on the size of the patch and on the radii of curvature of its contour line: in the case of
10 relatively large patches with relatively wide radii, it is also possible to provide wider margins. The ideal figure of 1-1.5 mm width applies in particular to patches in a size of from 5 to 25 cm² with a circular, oval or rectangularly rounded-off form.

15 In certain cases it may be sensible to vary the width of the marginal zone along the contour line of the patch - for example, broader in the region of low radii of curvature, narrower in the case of narrow radii -
20 since at narrow curvatures there is a particularly great risk of mechanical foldover of the margin on contact with clothing.

With regard to the thickness of the marginal film, too,
25 an optimum has been found between excessively thin and excessively thick material: too thick a film, depending on material, reduces the wear comfort of the patch by mechanical stresses on the skin, as a result of its rigidity even when its width is low.

30 Too thin a film, on the other hand, does not provide sufficient reinforcement of the margin, so that the marginal zone readily loses its positive contact with the skin and stands up at the margin of the patch as a
35 result of bending over or rolling up, for example.

A material of appropriate thickness provides the marginal zone with the required shape retention while not perceptively impairing the mechanical wear comfort

on the skin.

According to the invention, the non-adhesive exterior constitutes a border composed of a polymeric film or a
5 polymeric sheet and applied to the adhesive layer of the patch.

In the case of polyester films (PET) a thickness of from 6 to 150 μm , preferably 9 to 75 μm and with
10 particular preference about 36 μm has been determined to be suitable.

Where the layer is a polymer sheet based on a hydrocarbon polymer or silicone polymer, it may possess
15 a layer thickness of from 6 to 150 μm , preferably 15 to 75 μm .

It is also possible for the applied border to protrude, in terms of its area, partly or completely beyond the
20 contour lines of the rest of the patch.

In accordance with the invention the non-adhesive exterior may have a width along the contour line of the patch of from 0.5 to 5.0 mm, preferably 1 to 3 mm and
25 with particular preference 1.0 to 1.5 mm.

It has additionally been found that a repellent coating of the marginal film on the skin-facing surface has advantageous effects, by suppressing the inward flow or
30 undercreeping of the pressure-sensitive adhesive during storage and during application on the skin. The marginal zone remains free from adhesive for longer, as a result, and the formation of dirt rings is further reduced.

35 In the case of PSAs based on polyacrylates or hydrocarbons (e.g. polyisobutylene) siliconization is suitable as a form of repellent coating, whereas in the case of silicone-based PSAs the coating ought to be on

the basis of specific, fluorinated polymers.

In the case of patches for a long application period of 3 to 7 days, this repellent coating ought to exhibit
5 low mechanical rub-off, so as to ensure long durability. The problem of rub-off is known to the skilled person in the field of siliconization, and various techniques and products are available for reducing it.

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In order to make the inventive technology of a dirt-minimizing marginal zone more readily recognizable for the user, it can be advantageous to give the marginal zone a different design, in terms of colour or
15 transparency, from the remaining area of the patch. This can be done by applying a surface coating material to the marginal film or by metallizing it, preferably by vapour deposition of aluminium to the non-skin-facing surface of the marginal film. Alternatively a
20 visual emphasis may be given to the marginal zone by means of partial printing of the backing layer of the patch.

In the medical patch of the invention it is possible
25 for there to be at least one active pharmaceutical substance present.

The rate of active substance delivery per unit area in the exterior can be lower by a factor of at least 10
30 than the rate of delivery in the active substance interior, preferably by a factor of at least 100.

It is also possible for the medical patch to comprise active substances for hormone replacement therapy or
35 for transdermal contraception.

Advantageous embodiments of active substances are gestagens and oestrogens, preferably gestodene in combination with an oestrogen.

It is also possible for the application period of the medical patch to be 3 to 7 days.

5 The backing layer of the medical patch of the invention is not subject to any necessities which go beyond the requirements that are customary in this field. Preferred use is made of polyester films (PET, e.g. Hostaphan[®]), polyethylene films (e.g. CoTran 9720) or
10 multilayer laminates comprising these materials.

The adhesive layer may be composed of one or more layers, which may be identical or different in composition. Preference is given to one- or two-layer
15 systems which in one or both layers comprise at least one active pharmaceutical substance. The invention, however, expressly relates additionally to non-active-substance medical patches from the areas, for example, of wound care, catheter fixing or promotion of wound
20 healing.

Suitable PSA formulations include pressure-sensitive adhesives based on polyacrylates, hydrocarbons or silicones, and also blends thereof, such as are known
25 to the skilled person in the field of medical patches and transdermal therapeutic systems.

Owing to the inventively suppressed formation of dirt rings, however, it is also possible to employ
30 formulations with low cohesion and strongly adhesive formulations, which are otherwise unacceptable owing to the emergence of adhesive mass at the patch margin in the course of storage and/or application. Such formulations are based, for example, on non-crosslinked
35 polyacrylate PSAs (e.g. Durotak 387-2051, Durotak 387-2287), non-crosslinked silicone PSAs with high spontaneous adhesiveness/tack (e.g. Dow Corning Bio PSA 430X or 460X with X = 1, 2, 3) or hydrocarbon adhesives with a high fraction of low molecular mass hydrocarbons

(e.g. more than 20% Oppanol B10).

The active substance portion of the patch may also be implemented in the manner of a reservoir system, with a
5 semi-solid or liquid active substance reservoir.

Suitability as redetachable protective film is possessed by all coated papers and films that are customary for medical patches and transdermal
10 therapeutic systems.

This protective film can be made in the same size and contour as the patch lying on it or else may be designed so as to overhang at the sides. To facilitate
15 application it is possible for an application aid to be punched in the protective film.

It has been found that the formation of dirt rings can be avoided to a very high extent, and in some cases
20 even completely, if the marginal zone of the medical patch is made non-adhesive. An adhesive-free margin provided at the margin on all sides very substantially protects the more inward margin of the adhesive area against dirt and textile contact.

25 It is noted that this protection of the margin of the adhesive layer, in conjunction with mechanical reinforcement of this marginal zone, surprisingly results in an improvement in the long-term adhesiveness
30 of the patch, by preventing or retarding the mechanical detachment of the patch from the margin, caused by edge lifting and frictional contact with clothing.

The original expectation here was that a patch which is
35 not adhesive at the margin would be rubbed off quickly, even particularly quickly, by contact with clothing or other mechanical stress.

Description of the Figures:

Figures Fig. 1-A1 (cross-section) and A2 (plan view) show a medical patch of the invention in the simplest arrangement of all the components, which for the purposes of this invention is referred to as type A. A backing layer (1) is followed by at least one matrix layer (2), which may contain active substance and is followed at the margin by a marginal film (3); to finish off, a redetachable protective film (protective film) is provided. This protective film (4) does not overhang at the margin; the system is a fully punched-through system.

Figures Fig. 2-B1 (cross-section) and A2 (plan view) show a medical patch referred to in accordance with the invention as type B, for which in contradistinction to type A the protective film (4) overhangs at the margin.

Figures Fig. 3-C1 (cross-section) and C2 (plan view) show a medical patch referred to in accordance with the invention as type C, where the outer contour line of the marginal film (3) extends outside the contour line of the inner region, composed of backing layer (1) and matrix layer (2).

Figure Fig. 4-D depicts further, optional design features of the medical patches of the invention, illustrated for type B by way of example:

For greater ease of application an incision (5) is provided in the protective film, and along that incision initially only part of the protective film (4) can be removed before the patch is partially adhered, and then the second half of the protective film (4) is removed and, finally, the patch is adhered fully. To make it easier to remove the patch subsequently, a tab-like enlargement (6) is provided on the non-adhesive marginal region. At the end of the time of application,

the patch can be gripped more easily and pulled off by this end.

Figure Fig. 5-E shows details of a preferred version of the patch of type A:

The surface of the marginal film (3) that faces the protective film (4) has a coating (7) which is repellent to the adhesive matrix (2). The patch-facing surface of the protective film (4) necessarily likewise has a repellent coating, it being possible for this coating (8) to be identical to or different from the coating (7) of the marginal film (3).

Figure Fig. 6-F shows details of a further preferred version of the patch of type A:

The surface of the marginal film (3) that faces the protective film (4) has a coating (7) which is repellent to the adhesive matrix (2). Additionally the surface of the marginal film (3) facing the matrix layer (2) has been aluminized (9) for the purpose of ease of visual differentiation on the marginal zone of the remaining patch.

Figure Fig. 7-G shows details of a preferred version of the patch of type C:

The surface of the marginal film (3) that faces the protective film (4) has a coating (7) which is repellent to the adhesive matrix (2). Additionally the surface of the marginal film (3) that faces the matrix layer (2) also has a repellent coating (10). The patch-facing surface of the protective film (4) is necessarily repellently coated (8) in turn, it being possible for this coating (8) to be implemented identical to or different from the coatings (7 and 10) of the marginal film (3). The coatings (7 and 10) of the marginal film (3) can be implemented in the same way or differently. The release force of the adhesive matrix layer (2) from the coating (8) of the protective film (4) is preferably greater than the release force

of the adhesive matrix layer (2) from the coating (10) of the marginal film (3), so that in the production process the adhesive matrix layer (2) can be removed from the coating (10) of the marginal film (3) without
5 also detaching from the coating (8) of the protective film (4).

Figures Fig. 8-H1 (cross-section) and H2 (plan view) illustrate the transfer of the inventive principle to
10 active substance patches of the reservoir system type. Between the backing layer (1) and a heat-sealable interlayer (11), which may also be implemented in the form of a control membrane for the delivery of active substance, there is a liquid or semi-solid active
15 substance reservoir (12) which is enclosed on all sides. This system otherwise corresponds to inventive type A. An overhanging protective film can be provided in the same way as for type B.

20 For producing patches with a zone which is not adhesive at the margin it is preferred from a process engineering standpoint to introduce a marginal film along the margin of the patch. A description is given below of the key production steps for the basic types
25 A, B and C, from which types D to G can be derived by varying the starting materials and/or process steps.

A process for producing the medical patch of type A of the invention, comprising the production of a laminate
30 for the interior, composed of a backing layer, at least one active substance layer of pressure-sensitive adhesive and, for the exterior, preferably, a removable protective film, and also the use of a film repellently coated preferably on one side comprises the following
35 steps:

- a) in one step diecuts corresponding to the contours of the subsequent interior are made in the film provided for the marginal region, and the diecut areas are discarded,

- b) in a further step the film diecut under step a) is brought together one atop the other with the protective film of the patches that are to be produced; in the case of a repellently coated surface this repellent surface of the punched film comes to lie on the likewise repellently coated surface of the protective film,
- c) in a further step the laminate of the interior, composed of at least one pressure-sensitive adhesive matrix layer and also the backing layer, from which any protective film envisaged in the production operation has been removed, is laminated by its pressure-sensitive adhesive side onto the assembly consisting of the punched film of the marginal region and the protective film, the pressure-sensitive adhesive side of the laminate being brought into two-dimensional communication with the uncoated surface of the film of the marginal region and, via the diecuts therein, directly with the repellently coated surface of the protective film as well,
- d) in a last step the outer contour line of the patch is punched through all of the layers of the resultant laminate, this outer contour line extending at the distance intended for the width of the marginal zone round the diecuts, made under step a), in the film of the marginal region.

A process for producing the medical patch of type B of the invention, comprising the process steps as indicated above, is distinguished in that in step d), differently, the laminate is not punched through all of the layers but instead the contour line of the patch is punched through all of the layers with the exception of the protective film. Thereafter, the excess laminate mesh is removed from the protective film and discarded, before in a further step a protective film contour protruding beyond the margin of the patch is punched or cut.

A process for producing the medical patch of type C of the invention, comprising the production of a laminate for the interior, composed of a backing layer, at least one active substance layer of pressure-sensitive adhesive and, preferably, a removable protective film, and also the use of a film repellently coated on at least one side for the exterior, is characterized in that it comprises the following steps:

- 10 a) in one step diecuts corresponding to the contours of the subsequent interior are made in the film provided for the marginal region and coated repellently on at least one side, and the diecut areas are discarded,
- 15 b) in a further step the film diecut under step a) is brought together one atop the other with the protective film of the patches that are to be produced; where the at least one repellently coated surface of the punched film comes to lie on the side facing the protective film,
- 20 c) in a further step the laminate of the interior, composed of the backing layer and also at least one pressure-sensitive adhesive matrix layer, from which any protective film envisaged in the production operation has been removed, is laminated by its pressure-sensitive adhesive side onto the assembly consisting of the punched film of the marginal region and the protective film, the pressure-sensitive adhesive side of the
- 25 laminate being brought into two-dimensional communication with the uncoated surface of the film of the marginal region and, via the diecuts therein, directly with the repellently coated surface of the protective film as well,
- 30 d) in a further step the contour line of the interior of the patch is punched through the backing layer and the at least one matrix layer, this inner contour line extending at the distance intended round the diecuts, made under step a), in the film
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of the marginal region,

- e) In a further step, the excess laminate mesh composed of backing layer and at least one matrix layer is removed and discarded,
- 5 f) in a last step the outer contour line of the patch is punched through the exterior and the protective film, this outer contour line extending at the distance intended for the width of the overhanging marginal zone round the diecuts, made under step
- 10 d), in the film of the marginal region.

Exemplary Embodiments

Patch composition:

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Patch backing layer

Polyethylene film CoTran 9720 (3M)

	PSA matrix; layer thickness 100 g/m ²	Parts (dried)
20	Ethinylestradiol	0.6
	Gestodene	1.9
	MA73A	97.5
	Total	100.0

25 Marginal Film

Polyethylene terephthalate (PET) 36 µm (Hostaphan RN 36) siliconized on one side (Laufenberg).

Protective film

30 ScotchPak 9742 (3M) = 117 µm polyester film, fluoropolymer-coated on one side

The production of the exemplary system begins with the PSA matrix comprising active substance. For that

35 purpose the two active substances, ethinylestradiol and progestogen, are dissolved in pressure sensitive adhesive solution MA73A (Adhesives Research,

polyisobutylene-based PSA with added tackifier resin based on hydrogenated rosin esters).

5 This solution is coated in a layer thickness of 500 μm using a manual film applicator frame onto a siliconized polyester film (protective film) and after 10 minutes of drying in a laboratory fume cupboard at room temperature is dried in a drying cabinet at 60°C for a further 30 minutes.

10 The dried film has a layer thickness of approximately 100 g/m^2 ; it may be necessary to adapt the slot height during coating until the target coat-weight is obtained.

15 The dried film is lined with the CoTran 9720 backing layer.

20 Circular diecuts with an area of 10 cm^2 are made in the marginal film.

25 The marginal film is subsequently placed with its siliconized side downwards onto the protective film film, with the siliconized side of the protective film facing upwards.

30 The protective film is then removed from the adhesive matrix produced and the exposed adhesive area is laminated onto the marginal film. The adhesive layer enters into a permanent bond with the non-siliconized surface of the marginal film; as a result of the diecuts in the marginal film, moreover, the adhesive layer enters into a readily releasable bond with the siliconized surface of the protective film.

35 Finally an 11.5 cm^2 circular TTS is diecut from the assembly, the punching of this outer contour being placed symmetrically around the circular diecut of 10 cm^2 in the marginal film.

This produces a marginal zone with a width of approximately 1 mm.

Claims

1. Medical patch for use on the skin, wherein the contact area to the skin has a pressure-sensitive adhesive interior and also an exterior surrounding the interior, characterized in that the said exterior has been designed so as to be non-adhesive on its skin-facing surface.
2. Medical patch according to Claim 1, characterized in that the exterior has a mechanical reinforcement in the form of an additional layer in the construction of the patch.
3. Medical patch according to Claim 2, characterized in that the layer referred to comprises a polyester film in a layer thickness of from 6 to 150 μm , preferably 15 to 75 μm .
4. Medical patch according to Claim 2, characterized in that the layer referred to comprises a polymer film based on a hydrocarbon polymer or silicone polymer in a layer thickness of from 6 to 150 μm , preferably 15 to 75 μm .
5. Medical patch according to one or more of the preceding claims, characterized in that the non-adhesive exterior has a width along the contour line of the patch of from 0.5 to 5 mm, preferably 1.0 to 3.0 mm.
6. Medical patch according to one or more of the preceding claims, characterized in that the non-adhesive exterior constitutes a border composed of a polymeric film or a polymeric sheet and applied to the adhesive layer of the patch.

7. Medical patch according to Claim 6, characterized in that the applied border protrudes partly or completely in the area beyond the contour lines of the rest of the patch.
- 5 8. Medical patch according to one or more of the preceding claims, characterized in that the skin-facing surface of the exterior has a coating which is repellent to the pressure-sensitive adhesive,
10 preferably a siliconization or a coating with a fluorine-containing polymer.
9. Medical patch according to one or more of the preceding claims, characterized in that the non-
15 adhesive exterior is implemented differently in colour or transparency from the remaining area, preferably by means of vapour deposition of metal on one of the films forming part of the layer construction of the marginal zone.
- 20 10. Medical patch according to one or more of the preceding claims, characterized in that at least one active pharmaceutical substance is present.
- 25 11. Medical patch according to Claim 10, characterized in that the rate of active substance delivery per unit area in the exterior is lower by a factor of at least 10 than the rate of delivery in the active substance interior, with particular
30 preference by a factor of at least 100.
12. Medical patch according to one or more of the preceding claims, characterized in that the period of application is from 3 to 7 days.
- 35 13. Medical patch according to one or more of the preceding claims, characterized in that it comprises active substances for hormone

replacement therapy or for transdermal
contraception.

14. Medical patch according to one or more of the
5 preceding claims, characterized in that the active
substance is a progestogen and/or an oestrogen.
15. Medical patch according to Claim 14, characterized
in that it comprises gestodene in combination with
10 an oestrogen.
16. Process for producing the medical patch according
to Claim 1, comprising the production of a
lamine for the interior, composed of a backing
15 layer, at least one active substance layer of
pressure-sensitive adhesive and, preferably, a
removable protective film, and also the use of a
film repellently coated preferably on one side for
the exterior, characterized in that it comprises
20 the following steps:
- a) in one step diecuts corresponding to the
contours of the subsequent interior are made in
the film provided for the marginal region, and
the diecut areas are discarded,
- 25 b) in a further step the film diecut under step a)
is brought together one atop the other with the
protective film of the patches that are to be
produced; in the case of a repellently coated
surface this repellent surface of the punched
30 film comes to lie on the likewise repellently
coated surface of the protective film,
- c) in a further step the laminate of the interior,
composed of at least one pressure-sensitive
adhesive matrix layer and also the backing
35 layer, from which any protective film envisaged
in the production operation has been removed,
is laminated by its pressure-sensitive adhesive
side onto the assembly consisting of the

- 5 punched film of the marginal region and the protective film, the pressure-sensitive adhesive side of the laminate being brought into two-dimensional communication with the uncoated surface of the film of the marginal region and, via the diecuts therein, directly with the repellently coated surface of the protective film as well,
- 10 d) in a last step the outer contour line of the patch is punched through all of the layers of the resultant laminate, this outer contour line extending at the distance intended for the width of the marginal zone round the diecuts, made under step a), in the film of the marginal region.
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17. Process for producing the medical patch according to Claim 15, comprising the process steps according to Claim 15, characterized in that in step d), differently, the laminate is not punched through all of the layers but instead the contour line of the patch is punched through all of the layers with the exception of the protective film, whereafter the excess laminate mesh is removed from the protective film and discarded, before in a further step a protective film contour protruding beyond the margin of the patch is punched or cut.
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- 30 18. Process for producing the medical patch according to Claim 1, comprising the production of a laminate for the interior, composed of a backing layer, at least one active substance layer of pressure-sensitive adhesive and, for the exterior, preferably, a removable protective film, and also the use of a film repellently coated on at least one side, characterized in that it comprises the following steps:
- 35

- 5 a) in one step diecuts corresponding to the contours of the subsequent interior are made in the film provided for the marginal region and coated repellantly on at least one side, and the diecut areas are discarded,
- 10 b) in a further step the film diecut under step a) is brought together one atop the other with the protective film of the patches that are to be produced; where the at least one repellantly coated surface of the punched film comes to lie on the side facing the protective film,
- 15 c) in a further step the laminate of the interior, composed of the backing layer and also at least one pressure-sensitive adhesive matrix layer, from which any protective film envisaged in the production operation has been removed, is laminated by its pressure-sensitive adhesive side onto the assembly consisting of the punched film of the marginal region and the protective film, the pressure-sensitive adhesive side of the laminate being brought into two-dimensional communication with the uncoated surface of the film of the marginal region and, via the diecuts therein, directly with the repellantly coated surface of the protective film as well,
- 20
- 25 d) in a further step the contour line of the interior of the patch is punched through the backing layer and the at least one matrix layer, this inner contour line extending at the distance intended round the diecuts, made under step a), in the film of the marginal region,
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- e) in a further step, the excess laminate mesh composed of backing layer and at least one matrix layer is removed and discarded,
- 35
- f) in a last step the outer contour line of the patch is punched through the exterior and the protective film, this outer contour line

extending at the distance intended for the width of the overhanging marginal zone round the diecuts, made under step d), in the film of the marginal region.