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(54) Title: WOUND DRESSING

(57) Abstract: The invention provides a wound dressing, which includes a 1 to 12 mm thick layer of absorbent non-woven fibre material between 150 and 1200 grams per square meter, which layer includes a mixture of viscose fibres and polyester fibres which more viscose than polyester, and of which the fines of the viscose is between 1,5 and 3 dtex and the fines of the polyester is between 2 and 3 dtex.

Title: Wound Dressing

Technical field of the invention

This invention relates to wound dressings.

Background to the invention

The inventor is aware of the need for a wound dressing, which not only cover and protect the wound but create a healthy wound bed that is well vascularised. The reconstruction of the wound bed is of utmost importance. By this the inventor means to remove barriers and obstructions that prevent or delays wound healing.

Healing is optimized if the wound bed is healthy. It is therefore an object of the invention to provide a dressing which assists the body with the healing process, by preparing the wound bed for healing. An absorbent dressing is very important to absorb body fluid and keep it away from the wound bed, preventing maceration and over granulation.

Breaking down of slough and necrotic tissue improves wound healing, but also increases the volumes of exudates. This must be monitored carefully to prevent damage to healthy skin. Preferably, the dressing materials should also assist with the draining of oedem from the wound bed which reduces swelling and improves blood supply to the wound bed.

It is an object of the invention to provide a highly absorbent wound dressing, which actively assists with the healing process of a wound, in use.

General description of the invention

According to the invention there is provided a wound dressing, which includes a 1 to 12 mm thick layer of absorbent non-woven fibre material of

between 150 and 1200 grams per square meter, which layer includes a mixture of viscose fibres and polyester fibres with more viscose than polyester, and of which the linear density of the viscose is between 1.5 and 3 decitex (dtex) and the linear density of the polyester is between 2 and 3 dtex. Dtex is grams per 10,000 meters of fibre.

The layer of absorbent non-woven fibre material may comprise two or more thinner layers of absorbent non-woven material needle punched together to form the single layer.

The absorbent layer may preferably also include between 7 and 25 % chitin fibres mixed or interwoven with the viscose and polyester fibres with the chitin fibres having a linear density between 1.5 and 2.5 dtex.

One or both sides of the layer of absorbent material may be covered by a non-adherent layer. The non-adherent layer or layers may be heat bonded / laminated to the absorbent layer. The non-adherent layer may be a thin film of polyurethane or a HDPE based material such as CM18 produced by Smith & Nephew.

The composite density may be between 150 and 1200 grams per square meter (gsm), preferably about 700 - 750 gsm.

The polyester fibre length may be between about 30 and 70mm, preferably about 50mm.

The viscose fibre length may be between about 20 and 60mm, preferably about 40mm.

The chitin fibre length may be between about 30 and 70mm, preferably about 60mm.

In the case where two layers are needle punched together to form one layer, the punching density may be between 250 and to 380 punches per square centimetre, preferably about 320.

The construction of the dressing makes the material “super absorbent” with a “pass – on” effect from one dressing to another. The composition of the dressing also secures the exudates inside the dressing without “fall back” or “dripping” of exudates back onto the wound bed. This prevents the damaging of healthy surrounding skin. This dressing helps to reduce swelling and the restoration of the bacterial balance in the deeper compartments of the wound bed. This “pass – on” effect prevents colonization and duplication of bacteria. The antimicrobial fiber that forms part of the composition is very important in controlling bacterial levels on the wound bed, which helps to keep the wound bed healthy.

Some embodiments of the dressing also has a non-adherent film layer that help to protect the healthy wound bed. This film dressing is suitable on all type of wounds especially burns. Superficial healthy wounds with low volumes of exudates may be dressed with the film layer dressing. The film layer does not interfere with the healing process but rather protects the wound bed from any adherence by the dressing. New granulation tissue will not be harmed or damaged. The film may preferably breathable and of HDPE or polyurethane.

Detailed description of the invention

The invention is now described by way of examples.

Examples 1 and 2, with about 10x by weight absorbency capacity, in accordance with the invention, is a wound dressing, which includes a ± 3 - 5 mm thick layer of absorbent non-woven fibre material of ± 700 - 750 grams per square meter, which layer includes a mixture of 70% viscose fibres and 30% polyester fibres.

Product Specification:

	Example 1	Example 2
Polyester Fiber Length涤纶纤维长度	51mm	51mm
Vicose Fiber Length粘胶纤维长度	38mm	38mm
Polyester Linear density涤纶密度	2.2dtex	2.2dtex
Viscose Linear density 粘胶密度	1.67dtex	1.67dtex
Chitin Fiber Length	X	60mm
Chitin Fiber Linear density	X	2dtex
Batt Composition组成比例	70% Viscose 30% Polyester	60% Viscose 30% Polyester 10% Chitin
Punching Density针刺密度	300-350	300-350
Composite Mass per Square Meter混合物重量	750gsm	750gsm
Composite Thickness混合物厚度	5 mm	5 mm

Example 3, with about 10x by weight absorbency capacity, according to the invention there is provided a wound dressing, which includes the absorbent layer of the wound dressing described in Examples 1 and 2, which includes a non-adherent layer on both sides of the layer of absorbent material. The non-adherent layers are heat bonded / laminated to the absorbent layer.

Example 4 includes two absorbent layers which are needle punched together to form one thick absorbent layer as described in Examples 1 and 2.

Example 5 includes the absorbent layer as described in Example 4, which includes a non-adherent layer on both sides of the layer of absorbent material. The non-adherent layers are heat bonded / laminated to the absorbent layer.

Examples 6 to 9 is similar to and corresponds with examples 1 to 4 wherein the viscose is 55%, the polyester is 35% and includes 10% chitin fibres.

Further examples include a wound dressing similar to examples 1 to 9 with the single layer being 200gsm and about 1 mm thick or being 600gsm and about 3mm thick.

The applicant has found that the wound dressing absorbs fluids about 10x its own weight by means of adhesion and cohesion forces as well as electrostatic forces to draw out of the wound solid wound material and fluids vertically and to spread it horizontally in the absorbent layer. The wound material includes harmful bacteria. The wound dressing actively and continuously removes unwanted material from the wound until absorbent capacity is reached keeping the wound clear allowing the wound to heal faster than without the wound dressing. In addition, the chitin fibres also provide an antimicrobial function.

It shall be understood that the examples are provided for illustrating the invention further and to assist a person skilled in the art with understanding the invention and are not meant to be construed as unduly limiting the reasonable scope of the invention.

CLAIMS

1. A wound dressing, which includes a 1 to 12 mm thick layer of absorbent non-woven fibre material of between 150 and 1200 grams per square meter, which layer includes a mixture of viscose fibres and polyester fibres with more viscose than polyester, and of which the linear density of the viscose is between 1.5 and 3 dtex and the linear density of the polyester is between 2 and 3 dtex.

2. A wound dressing as claimed in Claim 1, wherein the layer of absorbent non-woven fibre material comprises two or more thinner layers of absorbent non-woven material needle punched together to form the single layer.

3. A wound dressing as claimed in Claim 1 or Claim 2, wherein the absorbent layer also includes between 7 and 25 % chitin fibres mixed or interwoven with the viscose and polyester fibres with the chitin fibres having a linear density between 1.5 and 2.5 dtex.

4. A wound dressing as claimed in any one of claims 1 to 3, wherein one or both sides of the layer of absorbent material are covered by a non-adherent layer.

5. A wound dressing as claimed in Claim 4, wherein the non-adherent layer or layers are heat bonded / laminated to the absorbent layer.

6. A wound dressing as claimed in Claim 5, wherein the non-adherent layer or layers are selected from a thin polyurethane or HDPE film.

7. A wound dressing as claimed in any one of claims 1 to 6, wherein the composite density is between 150 and 1000 grams per square meter.

8. A wound dressing as claimed in any one of claims 1 to 7, wherein the polyester fibre length is between about 30 and 70mm.

9. A wound dressing as claimed in any one of claims 1 to 8, wherein the viscose fibre length is between about 20 and 60mm.

10. A wound dressing as claimed in any one of claims 3 to 9, wherein the chitin fibre length is between 30 and 70mm.

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PCT / ZA 2015/050026

A. CLASSIFICATION OF SUBJECT MATTER

IPC: ***A61F13/15*** (2006.01)

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61F

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

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

WPI, EPODOC, DEPATISNET

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1035817 B1 (SCA HYGIENE PRODUCTS AB) 05 June 2002 (05.06.2002) [0028], [0033] - [0035], [0041], claims 1, 3-5, 9, figures 10, 11.	1, 2, 7 - 9
Y	WO 2007085884 A1 (MOUTON, JACOBUS, FREDERICK) 02 August 2007 (02.08.2007) claims 1 - 8, 16; figure 2.	1, 2, 7 - 9
Y	WO 2011138771 A2 (IWMT INTELLECTUAL PROPERTY HOLDINGS (PTY) LTD, MOUTON, JOHANNES PETRUS) 10 November 2011 (10.11.2011) claims 1 - 3, 9, 10, 12 - 19, 21, 22.	1, 2, 7-9

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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Information on patent family members

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