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<p>(21) International Application Number: PCT/NL97/00480</p> <p>(22) International Filing Date: 25 August 1997 (25.08.97)</p> <p>(30) Priority Data:</p> <table border="0"> <tr> <td>1003867</td> <td>23 August 1996 (23.08.96)</td> <td>NL</td> </tr> <tr> <td>1004087</td> <td>20 September 1996 (20.09.96)</td> <td>NL</td> </tr> </table> <p>(71) Applicant (<i>for all designated States except US</i>): BLYDENSTEIN-WILLINK N.V. [NL/NL]; Amaril- straat 30, NL-7554 TV Hengelo (NL).</p> <p>(72) Inventor; and</p> <p>(75) Inventor/Applicant (<i>for US only</i>): WEERKAMP, Louis, Leonard [NL/NL]; Hooiraamhoek 135, NL-7546 ME Enschede (NL).</p> <p>(74) Agents: VAN SOMEREN, Petronella et al.; Arnold & Siedsma, Sweelinckplein 1, NL-2517 GK The Hague (NL).</p>		1003867	23 August 1996 (23.08.96)	NL	1004087	20 September 1996 (20.09.96)	NL	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i> <i>In English translation (filed in Dutch).</i></p>
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<p>(54) Title: SUPPORT WITH SUPER-ABSORBENT MATERIAL, METHOD FOR THE PREPARATION THEREOF AND USE</p> <p>(57) Abstract</p> <p>The invention relates to a support provided with super-absorbent material to be manufactured by causing suitable monomers to polymerize in the presence of a catalyst in order to obtain a polymer solution, adding a cross-linking agent to the polymer solution to obtain a pasty composition, subsequently applying the composition on or in a support and allowing the applied composition to dry and cross-link in order to obtain the support with the super-absorbent material, wherein microspheres are added to the paste.</p>								

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**SUPPORT WITH SUPER-ABSORBENT MATERIAL, METHOD FOR
THE PREPARATION THEREOF AND USE**

The present invention relates to a support provided with a super-absorbent material, to a method for preparation thereof, a method for manufacturing the super-absorbent material, in addition to the use of the support in
5 different products.

Such a super-absorbent material is described in NL-A-1000572. With the "swelling coating" described in this patent application is proven that a paste, which after drying and curing has super-absorbent properties, is
10 applied most effectively (i.e. with the best absorption properties) via a template application technique. Using this printing technique the islets of paste are applied such that after drying and curing they have a diameter of 200 μ . A second advantage of application in this manner
15 is that release of the coating is prevented. Because the used polymer is very hard, full surface coating is not possible therewith since after drying the coating as it were breaks off the substrate. Even after application of the coating in the form of islets, these will still
20 sometimes "break off". A drawback to the application technique, and therefore the form of the coating, is that the application is limited. It is theoretically possible to apply a maximum such that the islets of 200 μ are 200 μ from each other and, if they are completely (semi-)
25 spherical, are a maximum of 100 μ high. Theoretically therefore, application will be a maximum of 70 g/m². This application is however less because the applied coating contains 70% water and the dot therefore also shrinks. Nor is the applied dot ideally semi-spherical, whereby it
30 is very difficult in practice to apply more than 50 g/m² (dry).

In the first instance a possibility was sought of making the coating softer so that after application it is no longer so hard that the coating "breaks off" at the
35 slightest mechanical load.

Research has been carried out into two types of softener; a softener between the polymer and a softener which is "fixed" to the polymers. In addition to the first type of softener not being recommended in the case
5 of a cable sheathing material (corrosion of the insulation), it has also been found not to work, the coating remained brittle.

The invention has for its object to obviate the above stated drawbacks and provides for this purpose a
10 method which is distinguished in that expanded microspheres are added to the coating.

It has been found by chance that, by adding expanded microspheres, not only did the coating become much less hard, but also that these microspheres had a positive
15 effect on the so-called swelling speed (= absorption time).

These two properties discovered by chance now make possible full surface application of the paste on a number of substrates while still retaining the same
20 absorption properties.

That the absorption properties become better can be explained by the fact that the coating layer becomes microporous due to the presence of the microspheres and the water transports rapidly through the coating.

It can be established experimentally that addition
25 of 1-100%, preferably 10% microspheres makes the coating softer and swelling sheathing material can thereby be applied in full surface coating to the same substrates as described in the above stated patent application, whereby
30 the application can also be increased (more than 50 g/m² dry).

In this application "microspheres" are understood to mean small globules which are filled with gas. Through heating the gas expands and the globules increase in
35 size. Microspheres are per se known and are used for different purposes, such as filler in inks etc.

A known type of microsphere, which is also particularly suitable for use in the invention, are microspheres of the brand and type Expancel™ 551 WE. The wall of

microspheres generally consists of a thermoplastic polymer.

For use in the invention the microspheres may or may not be expanded. Expansion can take place prior to or
5 during the production process of the coating.

CLAIMS

1. Support provided with super-absorbent material to be manufactured by causing suitable monomers to polymerize in the presence of a catalyst in order to obtain a polymer solution, adding a cross-linking agent to the
5 polymer solution to obtain a pasty composition, subsequently applying the composition on or in a support and allowing the applied composition to dry and cross-link in order to obtain the support with the super-absorbent material, wherein microspheres are added to the paste.
- 10 2. Support as claimed in claim 1, **characterized in that** the microspheres are expanded at a determined moment prior to or during the production process of the coating.
- 15 3. Support as claimed in claim 1 or 2, **characterized in that** the microspheres are Expancel™ 551 WE microspheres.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/NL 97/00480

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 C08J/04 D06M15/263 A61L15/00 B32B33/00 H01B7/28		
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) IPC 6 C08J D06M A61L B32B H01B		
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 practical, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 96 23024 A (WILLINK BLYDENSTEIN NV ;KROESBERGEN AALBERTUS PIETER (NL)) 1 August 1996 see the whole document & NL 1 000 572 A 23 July 1996 cited in the application ---	1-3
Y	US 4 006 273 A (WOLINSKI LEON E ET AL) 1 February 1977 see the whole document ---	1-3
A	US 3 615 972 A (MOREHOUSE DONALD S JR ET AL) 26 October 1971 see the whole document -----	1-3
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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