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### (54) Packaging material

(57) Packaging material comprises a sheet of corrugated paper (2,3) coated on at least one side with a cohesive composition and a strip (4) adhered to a coat-

ed side of the sheet (2,3). The strip (4) and the sheet (2,3) are perforated to provide a line of weakness (5) which facilitates opening of the packaging material by tearing.

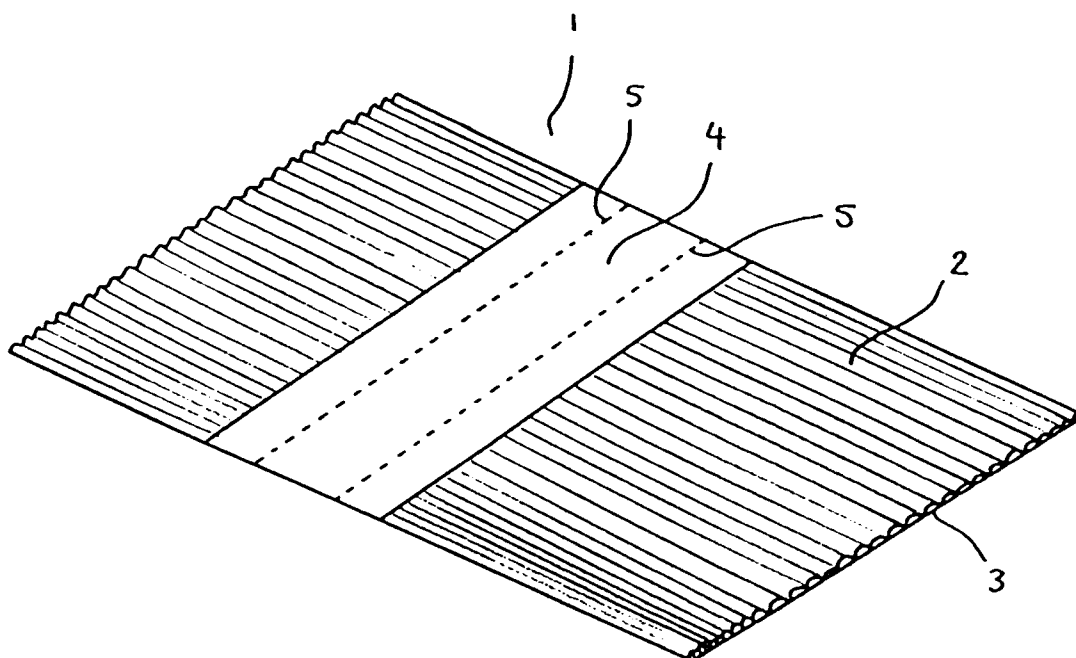


FIG. 1

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## Description

This invention relates to packaging material, to a process for its production and to a packaged article comprising the packaging material. In particular, the invention relates to packaging material comprising a corrugated sheet of paper coated with a cohesive composition.

Packaging material based on a corrugated sheet of paper coated with a cohesive composition is well-known and an example of such a product is the material sold by the applicant under the trade mark Cushionwrap<sup>®</sup>. The cohesive composition causes the paper to form an adhesive bond between coated sides but to form substantially no adhesive bond between a coated side and an uncoated side or another surface. Cohesive compositions are well-known in the art and are disclosed in, for example, GB 1458812 and EP-A-0656442.

A problem with packaging materials of the type mentioned above is that packages made from them can be difficult to open. The packaging material generally includes a relatively thick sheet of corrugated paper backed with a sheet of liner paper and this can be difficult to tear, particularly when tightly wrapped around a packaged article.

It is known that the opening of packages can be facilitated by incorporating a so-called "zip strip" or "tear tape" into the package. The zip strip can be two parallel lines of perforation through the packaging material which allows the package to be opened with greater ease by tearing along the lines of perforation. A tear tape is generally a tape of a different material from that of the package and facilitates opening of the package by being pulled through, or away from, the package.

US 4778059 and US 5098747 describe shipping cartons made from conventional double faced corrugated board. The cartons include a tear tape of a different material adhered to the inside of the carton which aids in tearing open the carton. The opened cartons are intended to form a tray to display the products which are packaged in the cartons.

GB-A-2233316 also relates to cartons which, when opened, form trays for the packaged product. The cartons are made of double faced corrugated board and include two parallel lines of perforation to allow them to be opened more easily.

US 5464151 discloses a container made of double faced corrugated board and incorporating a tear tape which is adhered to the inside of the container. Perforations provide a line of weakness for the tear tape but do not pass through the entire thickness of the board in order to avoid weakening the unopened container.

None of the prior art documents teaches anything about facilitating the opening of single faced cardboard packaging.

The present invention aims to make packages formed from packaging material of the type based on corrugated paper coated with a cohesive composition

more easily openable. This is achieved by perforating the material through a strip of paper which is applied directly to the coated side of the corrugated sheet.

Accordingly, the present invention provides packaging material comprising a sheet of corrugated paper coated on at least one side with a cohesive composition and a strip adhered to a coated side of the sheet, perforations being present through the strip and the underlying sheet to provide a line of weakness to facilitate opening of the packaging material by tearing. The invention also provides a packaged article comprising the packaging material of the invention. The packaging material may be wrapped around the article.

Surprisingly, it has been found that it is possible to adhere the strip directly to the corrugated sheet (rather than to a backing liner on the sheet) without adversely affecting the way in which the tear propagates along the perforations. In spite of being adhered to a corrugated sheet, which is by definition non-uniform, the tear line follows the perforations rather than deviating through the corrugations in the sheet.

Preferably, the packaging material is a single faced corrugated material having a cohesive coating on one side of the sheet and a backing liner on the other side. The backing liner will generally be of paper and the perforations which pass through the sheet and the strip preferably also pass through this liner.

The strip is preferably adhered to the sheet by interaction between the cohesive coating on the sheet and a cohesive coating on the strip. This has the advantage of avoiding the need for a separate adhesive system for the strip and overcomes the problem of adhering the strip to the sheet when it is coated with the cohesive composition.

The perforations are preferably in the form of two substantially parallel lines of cuts through the packaging material. The perforations may extend along the length of the strip. Suitably, the lines are 2 to 3 cm apart and are spaced at a distance of about 1 to 2 cm in from the edges of the strip.

It is preferred that the strip is of paper so that the packaging material remains predominantly paper based to ensure that it is recyclable. The term "paper", as used herein, is intended to cover all interlaced fibrous products such as are derived from cellulosic materials. Preferably, the corrugated sheet is of wet-strengthened paper and the strip and the liner, when present, are of kraft paper.

The cohesive composition can be any composition which, when coated onto a substrate (such as, for example, paper), causes the coated substrate to bind strongly to other coated substrates but to form little or no adhesive bond to uncoated surfaces. Suitable compositions are well-known in the art and may be based on rubber, either natural, modified or synthetic. The composition may be applied to the sheet in the form of a latex of the rubber.

The packaging material of the invention is conven-

iently produced by bonding the strip to the corrugated sheet by means of a cohesive composition and then perforating the resulting laminate. Therefore, in another embodiment, the present invention provides a process for producing the packaging material which comprises coating a strip with a cohesive composition, applying the coated strip to a sheet of corrugated paper coated with a cohesive composition so as to form an adhesive bond between the strip and the sheet and perforating the resulting laminate through the strip and the underlying sheet.

The invention will now be described, by way of example only, with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view of a product according to the invention showing the corrugated sheet and the strip; and

Figure 2 is a plan view of the underside of the sheet shown in Figure 1.

In Figure 1, sheet of packaging material 1 is a laminate comprising a corrugated sheet 2 which is coated on its uppermost face (as depicted in Figure 1) with a cohesive composition. A backing liner sheet 3 is adhesively bonded to the underside of the corrugated sheet 2 by a conventional adhesive system, for example a starch-based adhesive. Strip 4 runs across corrugated sheet 2 and is adhesively bonded to it by means of a cohesive composition on strip 4 which adheres to the cohesive composition on corrugated sheet 2. Thus, in order to adhere strip 4 to corrugated sheet 2, strip 4 is first coated on one side with a cohesive composition (preferably the same composition as is coated on corrugated sheet 2) and then applied to the coated side of corrugated sheet 2. Strip 4 has two series of perforations 5 which extend along the length of the strip. The perforations 5 are in the form of cuts, but could be holes or other shapes punched through the strip, and extend through both the corrugated sheet 2 and the backing liner sheet 3.

Figure 2 illustrates the underside of the packaging material of Figure 1 (showing backing liner sheet 3). Perforations 5 extend along the backing liner sheet 3.

When packaging material 1 is used to package an article (such as, for example, a book), the article is placed on the uppermost side of the packaging material 1, as shown in Figure 1 i.e., the side which has the coated corrugated surface provided by corrugated sheet 2 and the strip 4. The packaging material is wrapped around the article by bringing different parts of the coated sheet 2 into contact, thus forming an adhesive bond between the cohesive coated surfaces and producing a package around the article. Once packaged, the backing liner sheet 3 forms the outside of the package with perforations 5 visible. The package is opened by tearing along perforations 5 and, as the packaging material 1 is torn, strip 4 provides reinforcement to keep the tear

moving along perforations 5 rather than deviating away from the perforations 5 and into the unperforated corrugated sheet 2 and backing liner sheet 3.

The packaging material of the invention can be used in all applications for which the conventional products based on corrugated paper coated with a cohesive composition are appropriate and, by virtue of the deformability of the corrugated sheet, can cushion the packaged articles against damage in the same way.

## Claims

1. Packaging material comprising a sheet of corrugated paper coated on at least one side with a cohesive composition and a strip adhered to a coated side of the sheet, perforations being present through the strip and the underlying sheet to provide a line of weakness to facilitate opening of the packaging material by tearing.
2. Packaging material as claimed in claim 1 which is a single faced corrugated material having a cohesive coating on one side of the sheet and a backing liner on the other side.
3. Packaging material as claimed in claim 1 or claim 2, wherein the strip is adhered to the sheet by interaction between the cohesive coating on the sheet and a cohesive coating on the strip.
4. Packaging material as claimed in any one of claims 1 to 3, wherein the perforations are in the form of two substantially parallel lines of perforation.
5. Packaging material as claimed in any one of claims 1 to 4, wherein the strip is of paper.
6. Packaging material as claimed in any one of claims 1 to 5, wherein the cohesive composition is based on rubber.
7. Packaged article comprising the packaging material of any one of claims 1 to 6.
8. Process for producing the packaging material of any one of claims 1 to 6 comprising coating a strip with a cohesive composition, applying the coated strip to a sheet of corrugated paper coated with a cohesive composition so as to form an adhesive bond between the strip and the sheet and perforating the resulting laminate through the strip and the underlying sheet.

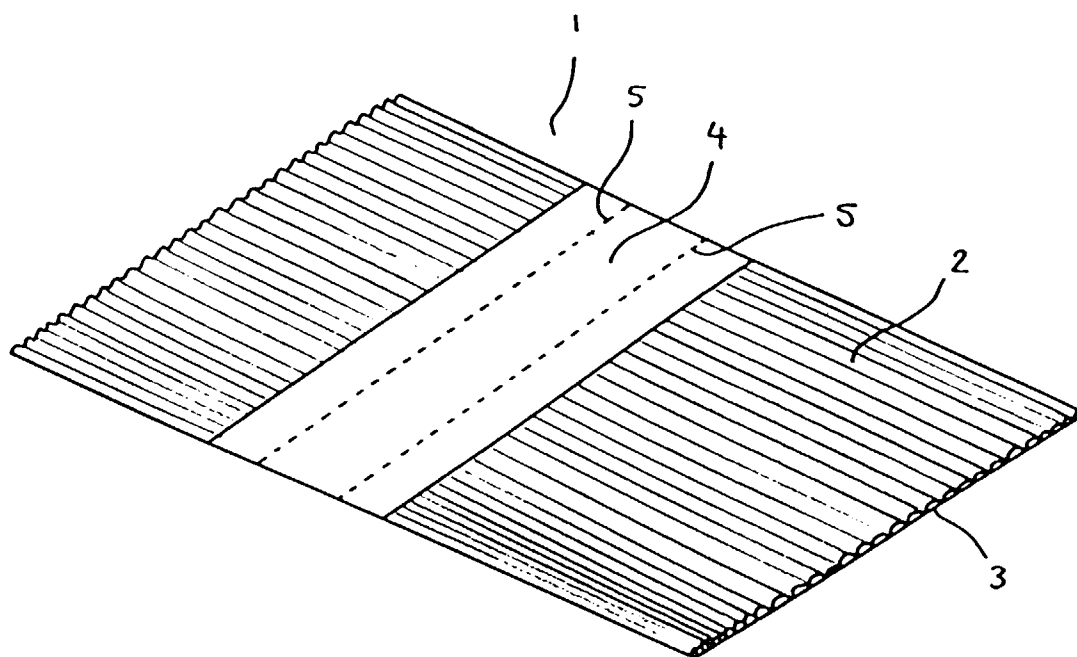


FIG. 1

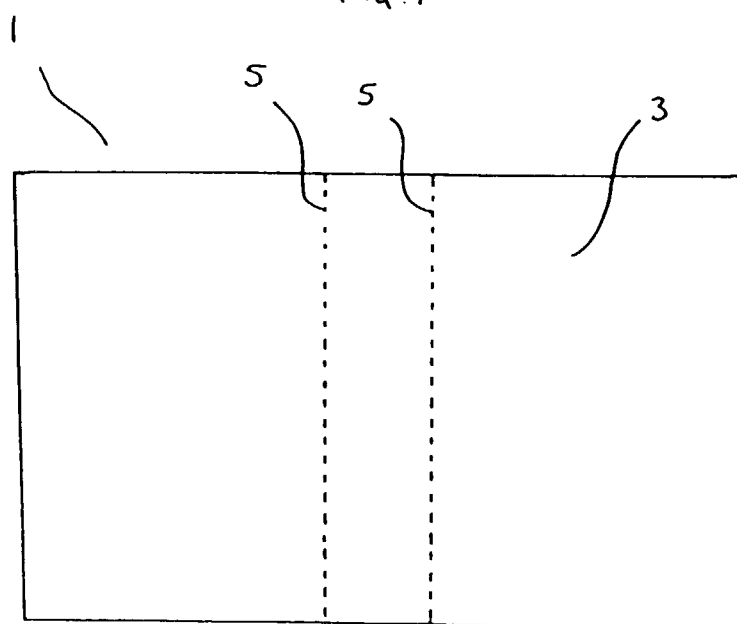


FIG. 2



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# EUROPEAN SEARCH REPORT

Application Number  
EP 98 30 0605

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X,P	US 5 704 481 A (LUTZ) 6 January 1998 * column 2, line 33 - column 3, line 32; figures 1-9 *	1-4,6-8	B65D65/40 B65D75/58 B65D5/54 B31B1/90
X	US 2 833 404 A (JACOBS) 6 May 1958 * column 2, line 17 - column 3, line 45; figures 1-5 *	1	
A	US 5 568 877 A (RENCH) 29 October 1996 * column 3, line 37 - column 4, line 15; figure 9 *	1	
A	DE 28 46 008 A (DEPRO DESIGN) 8 May 1980 * page 15, line 10 - page 17, line 1; figures 1,4 *	1	
A	US 3 203 618 A (ANDREWS) 31 August 1965 * figures 1-5 *	1	
A	JP 08 310 525 A (ASAHI KAKOSHI KK) 26 November 1996 * figures 1-6 *	1	
A	WO 92 02424 A (ST. REGIS PACKAGING) 20 February 1992 * figures 1,12 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
Place of search		Date of completion of the search	Examiner
THE HAGUE		28 May 1998	Berrington, N
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

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