

PATENT SPECIFICATION

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(54) ADHESIVE PLASTICS TAPE

(71) I, CHOW MEI CHANG, a Chinese citizen, of No. 332 Min-Shen West Road, Taipei, Taiwan, Republic of China, do here-by declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to adhesive tapes. Conventional plastics tapes which are used, for example, for sealing and packing purposes, are usually manufactured by calendering to form an homogeneous continuous film with a uniform and predetermined thickness. The surfaces of the tape are flat and smooth. One surface is coated with a thin adhesive layer by means of a similar calendering process. The adhesive coated tape is then wound on a take-up spool. The tape roll so obtained is cut into various desired widths to give the final products.

During the calendering operation, the continuous film is usually longitudinally extended by a pulling force which causes the inner molecules to undergo longitudinal orientation. This produces a much greater transverse tearing strength than longitudinal tearing strength. Thus, it is difficult to tear the tape along its transverse direction. The tape, instead, tends to tear along the longitudinal direction. Also, the transversely torn edges become curled and irregular.

As a result, these prior art plastics tapes cannot be applied to containers or the like with perfect and neat adherence at the tape end; the appearance of a container so taped is marred; and the packing and sealing effects are also reduced.

A further disadvantage of some known adhesive tapes is that when the tape is rolled, the adhesive surface of the tape closely and completely contacts the entire flat top surface of the next layer and the two surfaces usually stick together firmly.

[Price 25p]

Thus, considerable force is required to strip the tape from the roll, often causing deformation of the tape.

Different ways have been suggested for preventing the sticking problem and deformation, such as to coat one surface of the tape with a releasing agent, such as silicon oil, or to cover one surface of the tape with a paper or plastics layer coated with a releasing agent. But, these solutions are generally unsatisfactory, since they substantially increase the cost of such tapes and yet leave unsolved the aforementioned tearing problem.

With the foregoing problems in mind, the present invention provides a flexible adhesive tape of synthetic plastics material having a smooth rear surface coated with adhesive, and an uneven front surface so contoured that lines of weakness are provided running completely across the tape to facilitate transverse tearing of the tape by hand.

The provision of lines of weakness running completely across the tape renders the tape readily torn by hand in a simple and clean manner, and makes it unnecessary to use a knife or scissors to obtain a cleanly torn edge.

Furthermore, the contouring of the front of the tape is such that, when the tape is rolled up on itself, contact between contiguous front and rear surface portions is interrupted, the adhesive-coated rear surface contacting only the high points of the front surface.

In a preferred embodiment of the invention the front surface of the tape is formed with a series of side-by-side ribs each extending continuously across the full width of the tape, and wherein the lines of weakness are defined by the grooves between adjacent ribs.

The uneven front surface of the adhesive plastics tape also provides desirable friction

tional resistance for assisting gripping by hand of cartons which are sealed or packed with the tape.

In order that the invention may be well understood, there now will be described an embodiment thereof, given by way of example, reference being made to the accompanying drawings, in which:—

Figure 1 depicts a perspective view of an embodiment of the invention;

Figure 2a depicts a fragmental enlarged perspective view of a portion of tape cut away, along line A-A of the embodiment of Figure 1; and

Figures 2b and 2c are similar to Figure 2a, and depict other embodiments of the invention.

As shown in Figure 1, a soft, flexible adhesive plastics tape 1 is rolled upon a core 2 to form a tape roll. The front surface 11 of tape 1 is uneven and contoured according to a desired design. The smooth rear surface 12 of tape 1 is coated with a thin layer of suitable adhesive in a conventional manner.

As depicted in Figure 2a, the preferred form of tape has a front surface 11 which is provided with a series of side-by-side straight ribs 111 extending parallel with each other completely across the tape and at right angles to the length of the tape. The grooves 112 between adjacent ribs 111 constitute lines of weakness which facilitate transverse tearing of the tape by hand. The line of tearing is confined to the selected groove 112, any tendency for the line to wander being resisted by the ribs to either side.

It has been found in practical trials on this tape that a clean, straight-edged tear can be effected consistently, and that the torn edges do not display any tendency to curl.

In the rolled-up tape, the adhesive-coated rear surface contacts the contoured front surface only at the crests of the ridges, so that successive turns of the tape are quite easily stripped off the remainder of the roll. In a variant of this embodiment some of the ribs are of greater height than others between them, so that only the crests of the higher ribs are contacted in the roll.

An alternative pattern for the contours of the front surface is shown in Figure 2b in which two distinct groups of parallel ribs are provided, a first group 114 extending perpendicularly to the length of the tape, and a second group 113 extending transversely of the tape and intersecting the first group, so as to produce a grid pattern, with diamond-shaped recesses formed between adjacent ribs. In the second group, the ribs are of less height than the ribs 114 of the first group so that the principal lines of weakness extend in the direction of arrow

A', rather than of arrow B. The overall tensile strength of the tape is, of course, improved by this configuration.

It would also be possible to give the ribs 114 an interrupted or an undulating form if desired.

Figure 2c illustrates a tape, generally similar to that of Figure 2a, but in which the ribs 116 and intervening grooves 117 are of sinuous, curvilinear shape. The ribs may be irregular, but are preferably parallel with each other throughout their lengths.

Other variations and modifications will be possible within the scope of the invention, as defined by the appended claims.

WHAT I CLAIM IS:—

1. A flexible adhesive tape of synthetic plastics material having a smooth rear surface coated with adhesive, and an uneven front surface so contoured that lines of weakness are provided running completely across the tape to facilitate transverse tearing of the tape by hand.

2. A flexible adhesive tape according to claim 1, in which the front surface is formed with a series of side-by-side ribs each extending continuously across the full width of the tape, and wherein the lines of weakness are defined by the grooves between adjacent ribs.

3. A flexible adhesive tape according to claim 2, wherein some ribs have a greater height than others, so that when the tape is rolled up on itself, contact between the two surfaces of the tape is substantially limited to the crests of the ribs of greater height.

4. A flexible adhesive tape according to claim 3, wherein the ribs all extend parallel with each other transversely of the tape.

5. A flexible adhesive tape according to claim 3, wherein the ribs of greater height form one parallel series of ribs, and the other ribs are arranged in a second parallel series, also extending transversely of the tape but intersecting the first series of ribs.

6. A flexible adhesive tape according to any one of claims 2 to 5, wherein all the said ribs are of straight form.

7. A flexible adhesive tape according to any one of claims 2 to 4, wherein the ribs are of curvilinear form.

8. A flexible adhesive tape, substantially as herein described with reference to Figures 1 and 2A, or 2B, or 2C of the accompanying drawing.

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An alternative pattern for the contours of the front surface is shown in Figure 2b in which two distinct groups of parallel ribs are provided, a first group 114 extending perpendicularly to the length of the tape, and a second group 113 extending transversely of the tape and intersecting the first group, so as to produce a grid pattern, with diamond-shaped recesses formed between adjacent ribs. In the second group, the ribs are of less height than the ribs 114 of the first group so that the principal lines of weakness extend in the direction of arrow

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Figure 2c illustrates a tape, generally similar to that of Figure 2a, but in which the ribs 116 and intervening grooves 117 are of sinuous, curvilinear shape. The ribs may be irregular, but are preferably parallel with each other throughout their lengths.

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2. A flexible adhesive tape according to claim 1, in which the front surface is formed with a series of side-by-side ribs each extending continuously across the full width of the tape, and wherein the lines of weakness are defined by the grooves between adjacent ribs.
3. A flexible adhesive tape according to claim 2, wherein some ribs have a greater height than others, so that when the tape is rolled up on itself, contact between the two surfaces of the tape is substantially limited to the crests of the ribs of greater height.
4. A flexible adhesive tape according to claim 3, wherein the ribs all extend parallel with each other transversely of the tape.
5. A flexible adhesive tape according to claim 3, wherein the ribs of greater height form one parallel series of ribs, and the other ribs are arranged in a second parallel series, also extending transversely of the tape but intersecting the first series of ribs.
6. A flexible adhesive tape according to any one of claims 2 to 5, wherein all the said ribs are of straight form.
7. A flexible adhesive tape according to any one of claims 2 to 4, wherein the ribs are of curvilinear form.
8. A flexible adhesive tape, substantially as herein described with reference to Figures 1 and 2A, or 2B, or 2C of the accompanying drawing.

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