

PACKAGING WRAPPER CLOSED BY TWISTS ANDPACKAGING PROCESS

The present invention relates to a packaging wrapper consisting of a film intended to be closed by two
5 twists on either side of an article to be packaged, and to a process for packaging an article with the aid of such a package.

In particular, the invention relates to the field of the packaging of confectionery products.

10 Confectionery are generally packaged individually in a preprinted piece of film of an appropriate size and shape, it being possible for the said individually packaged products to be, in their turn, packed in bulk in a small packaging bag of an appropriate size. The article
15 to be packaged is typically first of all completely wrapped in a rectangular piece of film and the package thus formed is closed by twists at two points situated on either side of the article to be packaged.

In the context of the present invention a twist
20 is intended to mean the result of the closure by twining of the said wrapper.

An important problem which presents itself in this respect is that of the retention of the twist. This retention can be obtained only at the cost of a particu-
25 lar selection of the film employed as substrate, which must exhibit appropriate mechanical characteristics such as pliability or, in particular, a pronounced tendency not to return to its initial position after the twining of the said film.

30 In particular, this problem becomes apparent when articles of small sizes and of essentially round section are being packaged, such as confectionery products like, for example, bonbons, lollipops, barley sugar, fruit jellies, chocolate-coated bars or else more bulky prod-
35 ucts such as bottles, rolls of articles, etc.

As solution, it is known to select particular substrates which are known for their high pliability, like waxed paper or cellophane or synthetic films containing an appropriate quantity of an additive increasing

the pliability of the said substrate.

This solution considerably restricts the potential choices of films employed as packaging substrate and considerably increases their cost.

5 Packages closed by twists, which are produced from substrates precoated with a heat-sealing coating, are known on the market. When twists are being formed at the ends of the wrapper containing the article to be packaged, a source of heat at a temperature of
10 approximately between 120 and 160°C is approached for a certain period of time. In general, it is the jaws performing the twining that are heated, but it is also possible to blow hot air by means of a pipe of appropriate size onto the said twists, and this results
15 in the melting of the heat-sealing coating and the sealing of the twist thus formed when the said heat-sealing coating is cooled.

Document GB-A-1096058 proposes a film with a cold-sealing coating which exhibits an excellent retention after closure of the wrapper by twining of the
20 twists. This cold-sealing coating is in the form of two lengthwise strips situated in the regions of formation of the twists on either side of the article to be packaged.

Cold-sealing is intended to mean sealing which
25 takes place instantaneously merely by contact at a temperature of approximately between 0 and 50°C. In reality, the temperature is not a critical parameter for obtaining sealing by means of a cold-sealing coating and has practically no effect on the quality of the sealing
30 obtained. The sealing is therefore performed without an additional heat input being necessary at the ambient temperature of the space in which the packaging unit is situated.

This method therefore makes it possible to employ
35 films which are less expensive and have better properties (rigidity, printability, aesthetic qualities) for the packaging of articles without any restrictions as to the shape or the heat-sensitivity of the said articles.

The objective of the present invention is to

provide a novel packaging of the type with closure by twists, which allows a better closure than the currently known packages, as well as a novel packaging process.

5 To attain this objective the present invention provides a packaging wrapper consisting of a film intended to be closed by two twists on either side of an article to be packaged, characterized in that the film comprises, on the internal side in relation to the article to be packaged, a sealing coating placed along
10 two transverse strips on either side of the article to be packaged and extending parallel to an axis passing through the two twists.

The said sealing coating may be a cold-sealing coating or a heat-sealing coating.

15 The film may additionally comprise two lengthwise strips of sealing coating extending on either side of the article to be packaged, perpendicularly to the said transverse strips in the regions of formation of the twists. These sealing coatings may also be either cold-
20 sealing coatings or heat-sealing coatings. When the substrate of the film has a low resistance to elevated temperatures and/or when the article to be packaged is heat-sensitive, especially products of chocolate manufacture, the cold-sealing coating deserves to be preferred.

25 The heat-sealing coating may be a layer of PE (polyethylene) coextruded onto OPP (oriented polypropylene).

As cold-sealing coating, it is possible to envisage pressure-sensitive adhesives, which are substances which are continually adhesive and which adhere
30 spontaneously to the surface of most materials under the effect of a simple moderate pressure.

As a general rule the pressure-sensitive adhesives are compositions based on natural and/or
35 synthetic rubber, used in combination with modified cellophanes, phenol-formaldehyde resins or hydrocarbon resins (waxes). Besides rubbers, polymers based on styrene, (meth)acrylic acid or vinyl ether are widely employed, alone or as a mixture, also in combination with

resins. Lastly, silicone resins may also be employed. Compositions including mixtures of natural and synthetic rubbers and copolymers of (meth)acrylic acid and styrene are preferably employed.

5 These cold-sealing coatings are deposited onto the substrate at a rate of approximately from 1 to 5 g/m². They can be applied in the form of solution or dispersion or even in the molten state. Coating deposition techniques which are well known to a person skilled
10 in the art may be employed, such as, for example, heliographic or flexographic printing or else offset printing.

 The invention also proposes a process for packaging an article in a film comprising at least two transverse strips of a sealing coating, according to which the
15 article is deposited on the film on the side of the said strips and between the latter, the two sections which are provided with the said strips of coating are raised substantially vertically, the two sections are brought
20 close on top of the article and their edges are sealed to one another, the two edges thus sealed are folded back over the article and the projections of the film extending beyond on either side of the article are twined to form two twists.

25 When the strips of coating comprise a cold-sealing coating, the operation of folding and sealing the edges of the strips on top of the article is preferably carried out as a single operation between the jaws of a press.

30 When the coating is a heat-sealing coating, the edges are sealed to each other by a heat-sealing process.

 The invention has the advantage that, for the first time, the package of the twist-closure type is sealed in the transverse direction between the two
35 twists. Given that even the packages without lengthwise coating in the regions of formation of the twists have a leakproofing which is rather good at the twists, packages which are completely closed are thus produced.

 With regard to the packages provided with

lengthwise regions of heat- or cold-sealing coating, in the case of which there is a leakproof closure at the twists, a virtually hermetic closure is produced by virtue of the transverse sealing. This complete closure of the package is very advantageous with regard to the conservation of the articles, since it prevents the entry of moisture, of gas, of air or of other harmful substances and, at the same time, preserves the flavours within the packaging.

The invention will be understood better on reading the description of a few embodiments which are presented below, by way of illustration, with reference to the attached drawings in which:

- Figure 1 shows diagrammatically a plan view of a first embodiment of a package according to the present invention;

- Figure 2 shows diagrammatically a plan view of a second embodiment of a package according to the present invention;

- Figures 3a, 3b, 3c and 3d show the successive sequences of packaging of an article with the aid of a package according to the present invention;

- Figures 4a, 4b, 4c and 4d show, in perspective views, the various sequences of packaging;

- Figures 5 and 6 show the sealing and the folding of the packaging according to the present invention in the transverse direction parallel to the axis passing through the twists.

Figure 1 shows a strip of film indicated overall by reference 10, which is a film with a good retention where the twining alone suffices to obtain a rigid twist which does not open, that is to say a substrate which does not require an adhesive bonding coating for retaining the twists. Such a film may, for example, be a cellophane film, a cast PP (cast polypropylene) film, waxed paper, an aluminium/OPP laminate and the like.

The articles to be packaged are shown using broken lines by reference 12. The strip of film 10 is intended to be cut along the lines 14 to provide pieces

of film 16 which are identical with each other, which act as packaging wrappers for the articles 12. The outline of the twists 18 obtained by twining the projections on either side of the article to be packaged 12 has also
5 been shown using broken lines in Figure 1.

In accordance with the present invention the strip of film 10 comprises sealing coatings 20 extending in the transverse direction of the strip on the internal side in relation to the articles 12 to be packaged. These
10 strips 20 are placed straddling the cut lines 14 so that after cutting of the strip of film 10 each individual piece 16 comprises two transverse strips 20a, 20b of sealing coating along its edges.

In the example shown in Figure 1 the sealing
15 coating is a cold-sealing coating, for example the product 22-392 of the company Croda, which is deposited at a rate of 3 g/m².

Figure 2 shows a second embodiment of a packaging film 40 according to the present invention. This film 40
20 consists of coexOPP (coextruded oriented polypropylene) which on its own does not have any properties of retention of the twists 18. Nevertheless, to make it possible to form these twists 18 the film is coated in the two regions of formation of the twists 18, on the internal
25 side in relation to the product to be packaged 12, with two lengthwise strips 42, 44 of a cold-sealing coating which may consist of the same material as that of the transverse strips 20 of the embodiment of Figure 1. The embodiment of Figure 2 comprises transverse strips 46 of
30 heat-sealing coating which form transverse strips 46a and 46b along the edges of each piece after the film has been cut. These transverse strips of heat-sealing coating may be formed by a layer of PE coextruded onto the OPP.

It should be noted that various combinations are
35 possible between the embodiments according to Figures 1 and 2. Thus, for example, the transverse strips of cold-sealing coating of Figure 1 may be replaced by transverse strips of heat-sealing coating. Similarly, the heat-sealing strips 46 in Figure 2 may be replaced by cold-

sealing strips. Furthermore, it is possible that both the lengthwise strips 42, 44 in Figure 2 and the transverse strips 46 may all consist either of heat-sealing coating or of cold-sealing coating.

5 Figures 3a to 3d and Figures 4a to 4d illustrate the various successive stages of a process of packaging in accordance with the present invention with the aid of a package as described above with reference to Figures 1 or 2. The article 12 is placed on one of the film foils
10 16 within the transverse strips 20a and 20b. The pieces of film 16 of Figure 1 have been shown, by way of example, in the figures, but it is to be understood that the process applies equally well to the film of Figure 2 and to the various possible combinations. The two side
15 sections A and B with the transverse strips of sealing coating 20a and 20b are next folded upwards as shown in Figures 3a and 4a. The two sections A and B are next folded simultaneously inwards over the article 12 so that their internal edges with the transverse strips 20a and
20 20b are placed against one another as shown in Figure 4b. A pressure is next exerted, as shown in Figure 5, on the outside of each of the edges of the sections A and B over the whole width in order to seal these two sections well together at their cold-sealing coating. This operation of
25 folding the sections A and B and of sealing their edge may be performed as a single operation between the jaws of a press 48 (Figure 3b). A sealing rib 50 is thus obtained, which extends over the whole width, as shown in Figures 3c and 4b. This rib is next folded and folded
30 back over the package according to Figures 3d and 4c, preferably, by applying a vertical pressure according to Figure 6 to give the package an attractive presentation. The package is finished by twining the two ends in the direction of the folding back of the rib 50 to form two
35 twists 18 according to Figure 4d.

By virtue of the presence of the transverse strips 20a, 20b of cold-sealing coating and by virtue of the use of pressure, a perfect closure is obtained over the whole width of the package. In addition, the twists

18 ensure a side closure, above all when they are made at the lengthwise strips 42 and 44 of sealing coating according to Figure 2. A virtually hermetic package is thus produced, which prevents the exit of the flavours or the entry of air, of moisture, of detrimental odours and the like.

5 In the case of transverse strips of heat-sealing coating the jaws of the press 48 may be heated to a temperature of the order of 150° to obtain perfect
10 sealing between the strips 20a and 20b. It is also possible to blow hot air ($\pm 150-180^{\circ}\text{C}$) onto the two edges before they are sealed together in the press.



CLAIMS

1. Packaging wrapper consisting of a film (10, 40) intended to be closed by two twists (18) on either side of an article to be packaged (12), characterized in that
5 the film (10, 40) comprises, on the internal side in relation to the article to be packaged, (12) a sealing coating placed along two transverse strips (20a, 20b) and (46a, 46b) on either side of the article to be packaged (12) and extending parallel to an axis passing through
10 the two twists (18).
2. Wrapper according to Claim 1, characterized in that the said coating is a cold-sealing coating.
3. Wrapper according to Claim 1, characterized in that the said coating is a heat-sealing coating.
- 15 4. Wrapper according to either of Claims 2 and 3, characterized in that the film additionally has two lengthwise strips of cold-sealing coating (42, 44) extending on either side of the article to be packaged (12), perpendicularly to the said transverse strips (46a, 46b) in the regions of formation of the twists.
20
5. Wrapper according to either of Claims 2 and 3, characterized in that the film additionally has two lengthwise strips of heat-sealing coating extending on either side of the article to be packaged (12), perpen-
25 dicularly to the said transverse strips, in the regions of formation of the twists.
6. Process for packaging an article (12) in a film (10, 40) comprising at least two transverse strips of a sealing coating (20a, 20b) (46a, 46b), according to which
30 the article (12) is deposited on the film (10 40) on the side of the said strips and between the latter, the two sections which are provided with the said strips of coating are raised substantially vertically, the two sections are brought close on top of the article (12) and
35 their edges are sealed to one another, the two edges thus sealed are folded back over the article (12) and the projections of the films extending beyond on either side of the article are twined to form two twists (18).
7. Process according to Claim 6, characterized in





that the operation of folding and of sealing of the edges of the sections above the article is carried out as a single operation between the jaws of a press.

THIS SHEET HAS BEEN
REPLACED

This Sheet Has Been Replaced

