A method for forming a packaging material in multi-layer band (2) includes feeding a first band (3) of thermo formable material and at least a second band (4) along respective first and second feeding paths (P1, P2), which extend through a station (10) for joining the first band (3) and the second band (4). The bands (3, 4) are joined, by sealing, in the joining station (10), in order to obtain a third, multi-layer band (2) fed along a third feeding path (P3). Moreover, the method includes another step, during which at least one of the bands (3, 4, 2) undergoes a process for defining a visual, three-dimensional effect image on the band.
METHOD FOR FORMING A PACKAGING MATERIAL IN MULTILAYERED BAND

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a method for forming a packaging material in multi-layer band.

[0002] The present invention is advantageously used for forming a multi-layer band, so-called blister band, by joining two band materials, at least one of which is thermo formable. The blister band contains articles, in particular pharmaceutical products, such as tablets or capsules, to which the following description will refer explicitly, without losing its generality.

BRIEF DESCRIPTION OF THE PRIOR ART

[0003] In most cases, according to prior art, a blister band containing articles is formed by feeding a first band of thermo formable material, unwinding from a bobbin and running along a prefixed path, which extends through a station, in which blisters are defined by thermo forming, through a subsequent station for filling the blisters with articles, and then, through a further station, where the blister band is joined to another band material, to form a blister band including two superimposed layers.

[0004] The joining station includes heating means, which seal the blister band, filled with the articles, with the other band, which unwinds from a respective bobbin, being fed to the joining station along a feeding path.

[0005] According to this method, downstream of the joining station, the blister band is subsequently divided, for example by cutting, in single blister packs, each of which contains a selected number of articles enclosed in the blisters.

SUMMARY OF THE INVENTION

[0006] The object of the present invention is to improve the above method for forming and cut-dividing the blister band, in such a way that the so obtained blister packs have visual means, which make evident possible counterfeit or not genuine blister packs.

[0007] The present invention proposes a method for forming a packaging multi-layer band, which includes: feeding a first band of thermo formable material and at least a second band along respective first and second feeding paths, which extend through a joining station for joining said first band and said second band; joining, by sealing, said bands in said joining station, in order to obtain a third, multi-layer band fed along a third feeding path; the method being characterized in that it includes another step, during which at least one of said bands is processed to define a visual, three-dimensional effect image on the band.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The technical characteristics of the invention, according to the above objects, are clearly understood from the contents of the claims, reported below, and the advantages of the invention will become more evident from the following detailed description, with reference to the enclosed Figure in which:

FIG. 1 is a schematic view of a preferred, but not limiting embodiment of a unit carrying out the proposed method.

BEST MODES OF CARRYING OUT THE INVENTION

[0010] With reference to the enclosed Figure, the reference numeral 1 indicates a unit, known in itself, for forming a double-layer band 2.

[0011] In particular, the band 2 is a blister band and is defined by stable joining of a thermo formable band 3 with a sealing band 4.

[0012] The band 3 unwinds from a bobbin 5 and is fed along a path P1, which extends through a thermo forming station 6, in which blisters 7 are formed, through a subsequent station 8, where the blisters 7 are filled with articles 9, preferably pharmaceutical products, and through a joining station 10, in which the band 3 with the blisters 7 filled with the articles 9 is joined and sealed with the band 4, unwound from a bobbin 11 and fed to the joining station 10 along a path P2, to form the blister band 2.

[0013] Downstream of the joining station 10, the so obtained blister band 2 is moved forward along a path P3, until it reaches a shearing station 12, in which the blister band 2 is cut-divided into relative blister packs 13.

[0014] According to the preferred, but not limited embodiment, shown in the enclosed figure, the joining station 10 includes facing and opposite rolls, and includes a lower recessed driving roll 14, having recesses 15 for receiving the blisters 7, and an upper heating thrusting roll 16, which seals the band 4 to the blistered band 3.

[0015] According to the present invention, the method for forming a blister band in the above described unit 1, is improved by adding, to the known working steps, a step, during which a visible 3D effect image, e.g. light and shade effects, is defined at least on the band 3.

[0016] For this purpose, the peripheral surface of the driving roll 14 and/or the peripheral surface of the thrusting roll 16 are suitably processed mechanically, e.g. by electromechanical or similar process, so that the surface of the roll 14 and/or of the roll 16 has a conformation with relieves, arranged differently, so as to apply, when in use, a hologram or the like, on the band 3 and/or the band 4, such as e.g. either a digitized photographic image, or a logo, or a name, or a trademark (for example, the trademark of the pharmaceutical producer), or one or more alphanumeric codes (not shown) or also a Braille coded writing.

[0017] According to a preferred variant, the roll 14 and/or the roll 16 are suitably processed mechanically, so as to imprint, on the band 3 and/or the band 4 a filigree (not shown), of known type, e.g. the same as the one on the banknotes.

[0018] Thus, the blister packs 13 obtained by the cut-division of the blister band 2, defined by the joining the band 3 and the band 4, have well seen and clear depictions, which make the blister packs 13 difficult to counterfeit.

[0019] At present, the anti-counterfeit process of the blister packs 13 is as more important, as the products enclosed therein contain more active principles, from the pharmaco-
logical efficiency point of view, as well as from the economic point of view, which correspond to the efforts, which the pharmaceutical producer has made for the research and to the financial capital involved.

According to another variant of the unit 1 (not shown in the enclosed Figure), the joining station 10 is of known type including flat plates, which are moved with a reciprocation motion in opposite directions: therefore, the above mechanical processes for obtaining a relief conformation are performed on the flat surface of at least one of the plates.

It is also to be pointed out that according to the above description, the impressing the hologram or filigree is performed preferably by and in the joining station 10, however it can be performed upstream of the joining station 10, e.g. by suitably treated means acting only on the band 3 or only on the band 4, otherwise downstream of the joining station 10 by suitably treated means acting directly on the blister band 2 fed along the path P3.

According to a further embodiment (not shown), the band 3 and/or band 4 undergo a mechanical process to impress the holograms or the filigrees before being wound on the respective bobbins 5 and 11, or during the winding, thus avoiding the necessity to perform the holograms/filigrees printing during the unit 1 operation.

The so conceived invention can be subjected to many changes and variants, which remain within the inventive scope.

Moreover, all the details can be substituted by technically equivalent elements.

1. A method for forming a multi-layer band (2) packaging material, the method including: feeding a first band (3) of thermo formable material and at least a second band (4) along respective first and second feeding paths (P1, P2) extending through a joining station (10) for joining said first band (3) and said second band (4); joining, by sealing, said bands (3, 4) in said joining station (10) for obtaining a third, multi-layer band (2) fed along a third feeding path (P3); the method being characterized in that it includes another step for processing at least one of said bands (3, 4, 2) for defining a visual, three-dimensional effect image on the band.

2. A method as claimed in claim 1, wherein said image defining processing is performed at said joining station (10).

3. A method as claimed in claim 1, wherein said image defining processing is performed upstream of said joining station (10).

4. A method as claimed in claim 1, wherein said image defining processing is performed on said third band (2) downstream of said joining station (10), along said third path (P3).

5. A method as claimed in claim 1, wherein said first band (3) and said second band (4) are unwound from the respective bobbins (5, 11); said image defining processing being performed on at least one of said first and second bands (3, 4) before or during their winding on the bobbins.

6. A method as claimed in claim 1, wherein said image defining processing is a mechanical process for printing a hologram on said band (3, 4, 2).

7. A method as claimed in claim 6, wherein said hologram is defined by a digitalized photographic image.

8. A method as claimed in claim 6, wherein said hologram is defined by either a logo, or a name, or a trademark, or the like.

9. A method as claimed in claim 6, wherein said hologram is defined by at least one alpha-numerical code.

10. A method as claimed in claim 6, wherein said hologram is defined by a Braille coded wording.

11. A method as claimed in claim 6, wherein said process is a mechanical process for printing a filigree on said band (3, 4, 2).

12. A method as claimed in claim 1, wherein said third band (2) is a blister band (2) with articles (9), obtained by the reciprocal joining of said first thermo formable band (3), consisting of a blistered band (3) with blisters filled with said articles (9), and said second band (4), consisting of a closing band (4) for sealing said blister band (3).

13. A method as claimed in claim 11, characterized in that said articles (9) are pharmaceutical articles.

14. A blister pack (13) obtained by cut-division of a blister band (2) according to the method claimed in the claim 11 or 12.

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