A package (10), particularly for aseptic packaging, is made up of two opposite facing walls (12) heat sealed one to the other along a peripheral line (S). The walls (12) include at least one layer in metallized heat-sealable plastic material (13) or with barrier effect and at least one layer (16) in heat-sealable plastic material. The peripheral heat sealing line (S) is provided at the cutting edge of the walls (12) so as to form an encapsulation (I) of the coupled layers (13, 16) at the cutting edge, due to overflow of the plastic material.
PACKAGE, PARTICULARLY FOR ASEP TICALLY PACKAGEABLE PRODUCTS

[0001] The object of the present invention is a package, particularly suitable for the aseptic packaging of products, such as for example chopped tomatoes and tomato purée, fruit juices and the like.

[0002] Packages of the aforesaid type are made up of bags with walls having several layers or films, with at least one metallized layer or in any case with barrier effect.

[0003] Each wall of the bag typically has a metallized external layer with the following layering, proceeding from the exterior towards the interior: polyethylene-metalized polyester-polyethylene, and at least one layer of polyethylene, preferably three layers of polyethylene.

[0004] Such a bag, as described for example in EP 1512635 in the name of the same Applicant, is obtained by coupling separately the layers of each wall and then performing the peripheral heat sealings and, subsequently, transverse cuts to separate one bag from the next, after having inserted beforehand in a wall of the bag a mouthpiece for filling the same.

[0005] FIG. 1 shows a partially sectioned view of a bag 1 obtained in this way. More particularly, FIG. 1 shows the peripheral heat sealing 5 between facing multi-layer walls 2, each one comprising a metallized external layer 3 and at least one internal layer 4 in heat-sealable plastic material, such as polyethylene.

[0006] FIG. 1 also illustrates an edge portion B, at which portion the heat-sealed multi-layer walls 2 are separated, following the transverse cut of separation made during the phase of production of the bag 1.

[0007] It is clear that the composition of the walls of the bag can be different from that first illustrated by way of an example, as the process of production of the bag can also be different, i.e. the phases of coupling of the films.

[0008] The bags obtained in this way, wherein the filling mouthpiece is closed by an external cap, are normally transferred to sterilisation with gamma rays, before being sent to the users, which are in particular canneries firms or food firms in general, which use them for the packaging of chopped tomatoes and tomato purée, fruit juices and the like.

[0009] Filling of the bag takes place by means of appropriate systems for aseptic packaging, wherein the product, after having undergone a heat treatment by means of tube bundles, is sent to a loading head, which comprises a sterilised chamber, which is positioned in such a way as to embrace the filling mouthpiece, produces a jet of steam or of suitable sterilised solution so as to sterilise the area of the mouthpiece, removes the closing cap from the same and finally positions a tube for dispensing of the product inside the mouthpiece, so as to provide for filling of the bag. The aforesaid operations, or the majority of them, are performed with the bag inserted in a special drum for subsequent storage and transport.

[0010] The known bags described above and illustrated in FIG. 1 have, however, the following disadvantage.

[0011] In the phase of sterilisation with jet of steam in the area of the filling mouthpiece condensation is generated, which goes to deposit on the base of the drum. This condensation remains in contact with the transverse cut provided on the base of the bag, and therefore with the edge of the various component layers of the bag walls, penetrating through the layers of polyethylene, which are not combined one with the other, as far as the area of heat sealing 5.

[0012] More particularly, the prolonged contact of the condensation with the edge of the metallized layers 3 often causes the delamination between the combined films of polyethylene and metallized polyester of these layers 3 (arrows in FIG. 1).

[0013] As a result, during the phase of extraction of the bag from the storage drum, which takes place by lifting, the weight of its content causes at times its bursting, with consequent release of the product.

[0014] Another point of attack by external substances is represented by the heat sealing formed in at least one wall of the bag for the attachment of the filling mouthpiece.

[0015] The object of the invention is therefore that of eliminating, or at least reducing, the problem as mentioned above by making available a package, particularly for fluid products which are aseptically packageable, provided with heat sealing performed in such a way as to prevent possible infiltrations of condensation between the films of the metallized layers and the consequent separation of the same.

[0016] Another object of the present invention is that of providing a package which can be produced at competitive manufacturing costs.

[0017] These and other objects, which will be made clearer herein below, are achieved in accordance with the invention with the features listed in the annexed claim 1.

[0018] Further advantageous features of the invention form the object of the dependent claims.

[0019] According to the present invention a package is therefore provided, particularly for aseptic packaging, made up of two opposite facing walls heat sealed one to the other along a peripheral line. The walls comprise at least one layer in metallized heat-sealable plastic material or with barrier effect and at least one layer in heat-sealable plastic material. The package is characterised in that the peripheral heat sealing line is provided at the cutting edge of the walls, so as to form an encapsulation of the coupled layers at the cutting edge, due to overflow of the plastic material.

[0020] The features of the invention will be made clearer by the following detailed description referred to one of its embodiments purely by way of a non-limiting example, illustrated in the accompanying drawings, in which:

[0021] FIG. 1 is a sectioned partial view on an enlarged scale of a package of the prior art.

[0022] FIG. 2 is a perspective view of a package according to an embodiment of the present invention, and

[0023] FIG. 3 is a sectioned view on an enlarged scale taken along the trace III-III of FIG. 2.

[0024] In the drawings listed above identical or similar elements will be denoted by the same reference numerals.

[0025] Referring to Figs. 2 and 3, a package is illustrated in them, particularly for aseptically packageable fluid products, according to an embodiment of the present invention, denoted in general by reference numeral 10.

[0026] The package 10 comprises opposite facing walls 12 obtained from the coupling of at least two layers of plastic material and joined one to the other by means of a peripheral heat sealing line 5. At one of the two opposite facing walls 12 a filling mouthpiece 20, provided with a closing cap 22, is preferably applied.

[0027] As shown in detail in FIG. 3, each wall 12 comprises, preferably, a metallized external layer 13, or with barrier effect, including a pair of films 14 of heat-sealable material, such as polyethylene, between which a film of metallized polyester 15 is placed, and at least another internal layer of polyethylene 16, in the example illustrated a single layer of polyethylene 16, but in practice more than one. The
internal layers of polyethylene 16 are not combined or glued one to the other and to the metallized external layer 13.

[0028] The peripheral heat sealing S is formed at the edge of the facing walls 12. As a result, in the heat sealing phase, there is an overflow of the polyethylene plastic material whereof the walls 12 are made, which, once cooled, forms an encapsulation I of the layers 14, 15 and 16, at the cutting line.

[0029] This encapsulation I prevents, advantageously, the delamination of the metallized external layers 13, i.e. the separation between the films of polyethylene 14 and the film of metallized polyester 15, caused by the deposit of condensation on the base of the drum of storage of the package 10 following a treatment of sterilisation with jet of steam of the same package.

[0030] As shown in FIG. 2, preferably, a heat sealing 51 is provided, with encapsulation I of the films 14, 15 and 16 of the metallized external layer 13, also at the cutting edge formed in one of the two walls 12 of the bag 10 for the insertion and the attachment of the filling mouthpiece 20.

[0031] This prevents, advantageously, the delamination of the metallized external layer 13, in an area which constitutes, as mentioned previously, a typical point of attack by external substances, such as condensation and the like.

[0032] Depending on the methods used for manufacturing the bag, by forwarding the films forming the walls 12 hereto in the longitudinal or transversal direction of the bag, and by subsequently making transversal or longitudinal cuts respectively on the formed bags, at least two further heat sealings can be provided along two opposite sides of the bag, which are parallel to the heat sealing made on the edges of the bag.

[0033] For example, if the bags are made by means of a continuous forwarding in the longitudinal direction, heat sealings are made on the edges of the longitudinal cut including encapsulation of the layers at their edges as stated before, and double transversal spaced heat sealings are made between the tail and the head of two adjacent bags, which are separated by means of a transversal cut between them. In this case, heat sealings are made on the transversal edges of the cut with overflow of plastic material, which remain spaced apart from the preceding ones and form, together with the previously made longitudinal heat sealings, the said peripheral sealing S.

[0034] From what is disclosed above, it is easily understood how, thanks to the presence of the heat sealing S at the peripheral edge of the package, with consequent encapsulation of the layers of the walls due to overflow of plastic material, a package is obtained, particularly for aseptically packageable products, able to remain intact especially during lifting from the storage drum.

[0035] Numerous detail variations and changes can be made to the embodiments of the invention described above, within the reach of a person skilled in the art and in any case coming within the scope of the invention expressed by the annexed claims.

[0036] For example, although in the example described and illustrated reference has been made to a bag whose walls comprise a metallized external layer including a pair of polyethylene films, between which a metallized polyester film is placed, the invention is applicable to all laminates containing films of nylon or of ethylene-vinyl-alcohol (EVOH), notoriously sensitive to humidity and to all cases wherein there is a risk of delamination by external agents.

1-7. (canceled)

8. A package (10), particularly for aseptic packaging, consisting of two opposite facing walls (12) heat sealed one to another along a peripheral line (S), said walls (12) comprising at least one layer in heat-sealable metallized plastic material (13), or with barrier effect, and at least one layer (16) in heat-sealable plastic material, wherein said peripheral heat sealing line (S) is provided at the cutting edge of said walls (12) and in that at said cutting edge an encapsulation (I) of said coupled layers (13, 16) is provided, said encapsulation being formed by means of overflow of the plastic material.

9. The package (10) according to claim 8, further comprising at least two further heat sealings at two longitudinal or transversal opposite sides of the bag for coupling said opposite facing walls (12), parallel to the edge peripheral heat sealing line (S) and suitably spaced therefrom.

10. The package (10) according to claim 8, wherein said at least one metallized layer or with barrier effect (13) comprises a pair of films of polyethylene (14) with a film of metallized polyester (15) placed therebetween.

11. The package (10) according to claim 8, wherein said at least one metallized layer or with barrier effect (13) comprises at least one film of nylon or of ethylene-vinyl-alcohol (EVOH).

12. The package (10) according to claim 8, wherein said at least one plastic material layer (16) is made of polyethylene.

13. The package (10) according to claim 8, wherein a cut is formed at one of said facing walls (12) for inserting and fixing a filling mouthpiece (20) provided with a closing cap (22).

14. The package (10) according to claim 13, wherein a heat sealing (Si) with encapsulation (I) of the facing layers (13-16) is provided at the edge of said cut for inserting and fixing the filling mouthpiece (20).

15. The package (10) according to claim 9, wherein said at least one metallized layer or with barrier effect (13) comprises a pair of films of polyethylene (14) with a film of metallized polyester (15) placed therebetween.

16. The package (10) according to claim 9, wherein said at least one metallized layer or with barrier effect (13) comprises at least one film of nylon or of ethylene-vinyl-alcohol (EVOH).

17. The package (10) according to claim 9, wherein a cut is formed at one of said facing walls (12) for inserting and fixing a filling mouthpiece (20) provided with a closing cap (22).

18. The package (10) according to claim 17, wherein a heat sealing (51) with encapsulation (I) of the facing layers (13-16) is provided at the edge of said cut for inserting and fixing the filling mouthpiece (20).