A package for and method of packaging individual stacks of nested fragile articles such as ice cream cones is provided in which a split sleeve of resilient compressible material is uniformly constrained into engagement with the stack of articles by an outer envelope of heat shrink material. In a preferred embodiment the sleeve is comprised of internally fluted or corrugated material having the flutes disposed orthogonally of the axis of the stack to engage the annular rims of the nested articles and preclude relative movement therebetween. The sleeve is longer than the stack, extends beyond both ends thereof and the heat shrink envelope is sealed about the package to maintain sanitation and protect the contents from moisture and oxidation.

12 Claims, 5 Drawing Figures
PACKAGE FOR FRAGILE NESTED ARTICLES
AND METHOD FOR MAKING SAME

This invention relates to packages for fragile nested articles such as single stacks of a plurality of ice cream cones and the like and more particularly, to such packages in which the package includes a resilient sleeve which is closely and conformally fitted to the stack of fragile articles by means of an external heat shrink film or the like.

In the prior art, packages for stacks of ice cream cones and other fragile articles have exhibited the propensity to break the articles due to lack of uniform pressure or holding action on the articles thereby permitting them to be forced together in their nested stacked configuration.

It is an object of the present invention to provide a new and novel package and method of packaging for a single stack of nested fragile articles, such as ice cream cones and the like.

It is another object of the present invention to provide a new and novel package for a single stack of nested fragile articles such as ice cream cones and the like, wherein an outer sleeve of resilient compressible material is wrapped around the stack and retained in place by a heat shrinkable outer wrapping.

Still another object of the present invention is to provide a new and novel package and method of packaging a single stack of nested fragile articles which optimally precludes breakage, contamination and oxidation of the stacked articles, as well as the deleterious effects of moisture thereon.

Yet another object of the invention is to provide a new and novel package and method of packaging for a single stack of fragile articles such as ice cream cones, and the like wherein a single faced corrugated sheet with the flutes of the corrugations facing inwardly thereof and parallel to the rims of the fragile articles or cones is scored or formed in an octagonal sleeve configuration, disposed about the stack of articles, and secured in place thereabout by an envelope of heat shrink film or the like over the entire external area of the package.

Yet another object of the present invention is to provide a new and novel package and method of packaging for a single stack of fragile articles such as ice cream cones and the like wherein a single faced corrugated sheet with the flutes of the corrugations facing inwardly thereof and parallel to the rims of the fragile articles or cones is scored in an octagonal sleeve configuration, disposed about the stack of articles, and secured in place thereabout by an envelope of heat shrink film over the entire external area of the package; and wherein the width of the single faced corrugated sheet comprising the sleeve is of a smaller dimension than the peripheral dimension of the stack of nested fragile articles or cones, whereby, the heat shrink film applied externally of the single-faced sheet and shrunk thereabout, will cause the said sheet to contract uniformly about the stack of nested articles and apply uniform pressure to each and every article in the stack.

These and other objects of the present invention will become more fully apparent with reference to following specification and drawings, which relate to a preferred embodiment of the present invention.

In the Drawings:

FIG. 1 is a partially exploded view of a stack of nested fragile articles positioned adjacent a resilient sheet which is about to be sleeved around the stack;

FIG. 2 is a top end view illustrating one preferred embodiment of a split sleeve configuration of the present invention;

FIG. 3 is a top end view illustrating another preferred embodiment of a split sleeve configuration of the present invention; and

FIG. 4 is a perspective view of a completed package of the present invention looking in from the bottom of the stack of nested fragile articles;

FIG. 5 is a top end view illustrating another preferred embodiment of a multiplicity of completed packages reposed in an outer container to form a honeycomb-like labyrinth.

Basically, the invention comprises a resilient sheet of material, such as a single faced corrugated sheet or the like, which is scored orthogonally of the flutes to bend around a stack of ice cream cone bodies or other nested fragile articles in a multisided configuration such as an octagonal configuration. The size of the corrugated sheet is such that it does not quite close around the periphery of the stack of cones or fragile articles. The corrugations are so arranged that the rims of individual cones or articles are nested between individual corrugations to keep the cones or articles in the stack relatively immobile with respect to one another. A heat shrinkable envelope, such as a bag of heat shrink film, is placed over the package and heat is applied to shrink and seal the film about the sleeve and cause a compression of the single-faced corrugated sheet around the cone stack.

The preferred configuration of the corrugated sheet is that of a split sleeve with a substantially octagonal cross section. The octagonal cross section permits the utilization of a plurality of such individual packages of stacked articles to be placed in a larger container for shipping and handling or the like.

Alternatively, any suitable split-sleeve configuration such as those which are circular or square in cross-section can be utilized so long as it has either preformed internal flutes or will deform to effect flutes for engagement with the rims of the stack of nested articles and is of insufficient peripheral dimension to completely surround the said stack of nested articles. As another example, the split sleeve could be made in a clamshell configuration, i.e., with the split portions thereof hinged together at one end.

Further, other shrinkable and/or contractable materials can be used to envelope the split sleeve configuration in the application of substantially uniform pressure to the nested articles in the stack.

The split sleeve configuration of the single-faced corrugated sheet or other suitable resilient sheet material, provides enough leeway at the open seam of the split sleeve to permit the heat shrink film to individually adjust the size of the sleeve to a wide range of production tolerances in the fragile nested articles or ice cream cones. Therefore, the articles are completely entrapped by the single-faced corrugated sheet by having the rims or upper edges of each article engaged in a flute of the corrugated sheet or under sufficient compression by a resilient sheet material to thereby preclude relative movement between the individual fragile articles or ice
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cream cones in the packaged stack. Thus, in the event of nonsuniformity in size of the fragile articles or stacked cones, the package of the present invention will even dimple slightly to insure uniform contact of the resilient or single-faced corrugated sheet with the rim of each and every article or cone.

The dimension of the resilient sheet material or single-faced corrugated sheet along the longitudinal axis of the stack is greater at both ends of the stack than the dimension of the stack itself in order to preclude breakage of the fragile articles contained therein should the finished package be dropped on one end or the other.

Referring in detail to FIGS. 1, 2, 3 and 4 of the drawings, the cone package 10 of the present invention is shown as including a stack of nested fragile articles such as ice cream cones 12 enclosed in a single-faced corrugated sheet 14 scored at lines 14A by cut scoring or the like extending orthogonally of the corrugations 14B, the said corrugations 14B being turned inward of the package 10. The articles in the stack 12 include a plurality of rimmed areas 12A which extend annularly of each of the articles in the nested stack 12.

When disposed within the single-faced corrugated sheet 14, or a suitable equivalent such as a soft, plastic foam sheet, the annular rim 12A of the nested articles 12 will either individually index themselves into the spaces (flutes) between the corrugations 14B, the latter being disposed orthogonally of the longitudinal axis of the stack, or will be pressed into the inner side wall of a soft resilient material should the sheet 14 be made of a soft, plastic foam or the like.

A bag or sheath (envelope) of heat shrink film material 16 is placed completely around the resilient sheet 14, over the ends thereof, such that upon the application of heat in a manner known in the art, the film 16 will shrink and compress the resilient sheet 14 uniformly and tightly about the periphery of the stack 12. The heat shrinkable envelope can readily be sealed at the open ends of the package 10 to substantially preclude contamination and oxidation of the stacked articles and protect them against the deleterious effects of moisture.

As clearly shown in FIGS. 2 and 3, the resilient sheet 14 is so dimensioned that an open channel 14C, running longitudinally of the external periphery of the stack 12, is defined by the two free ends 14D of the resilient sheet 14.

Therefore, when the shrinking action is imparted to the surrounding heat shrink film 16, the resilient sheet 14 is constrained by this shrinkage to close down upon the stack of articles 12 by means of the free ends 14D thereof moving together to narrow the channel 14C therebetween and thereby impart a multiple gripping action about each of the rims 12A in the stack of articles 12. This gripping action is extremely uniform since there is no local application of pressure on outer periphery of the resilient sheet 14 by the shrinking action of the heat shrink film 16. To the contrary, it is a substantially complete and even distribution of compression forces about the periphery of the stack articles 12 such that the rims 12A thereof are constrained to press into the inner side wall of the resilient sheet 14.

In the embodiment in which there are flutes 14B orthogonally disposed with respect to the longitudinal axis of the stacked articles 12, the rims 12A are constrained to enter respective ones of the flutes 14B and be held therein by the compressive action of the heat shrink film 16 on the resilient sheet 14.

Referring now to FIG. 5 a multiplicity of packages 10 are shown reposed in an outer container 18. Here, it can readily be seen that the multiplicity of flat sides provided on the packages 10 by the octagonal cross sectional shapes thereof provide a means by which the individual packages 10 may index one upon the other and efficiently fill the space within the outer package or container 18 to form a honeycomb-like labyrinth in which individual stacks 12 of fragile articles are entrained and protected.

What is claimed:

1. In combination,
   a stack of nested fragile articles having individual exposed rim portions;
   a sheet of resilient compressible material wrapped partially about the periphery of said stack, extending beyond both ends of said stack and enclosing all but a minor portion of said periphery defined by a gap between the ends of said sheet; and
   an outer envelope of contractable heat or other shrink material surrounding said sheet and said stack and being contracted therearound, said envelope exerting a uniform compressive force on said sheet, constraining and partially closing said gap, and engaging said exposed rim portions with the inner surface of said sheet with substantially uniform force throughout said stack.

2. The invention defined in claim 1, wherein said articles comprise ice cream cones.

3. The invention defined in claim 1, wherein said resilient compressible material comprises corrugated material having internally disposed corrugations oriented orthogonally of the longitudinal axis of said stack of articles for receiving said exposed rim portions therebetween.

4. The invention defined in claim 3, wherein said articles comprise ice cream cones.

5. The invention defined in claim 1, wherein said resilient compressible material comprises corrugated material having internally disposed corrugations oriented orthogonally of the longitudinal axis of said stack of articles for receiving said exposed rim portions; and

wherein said corrugations are scored orthogonally to form a multi-sided split sleeve about said stack of articles and thereby engage each of said rim portions in a plurality of discrete areas about the peripheries thereof.

6. The invention defined in claim 5, wherein said articles comprise ice cream cones.

7. The invention defined in claim 5, wherein said split sleeve is substantially octagonal in cross-section.

8. The invention defined in claim 1, wherein said contractable material comprises heat shrink film.

9. The method of packaging a stack of nested fragile articles comprising:

   surrounding said articles with a split sleeve of resilient compressible material of a dimension insufficient to totally enclose the periphery of said stack;
   enveloping said stack and said split sleeve in a shrinkable material; and
shrinking said material about said split sleeve to con-
strain the latter into substantially uniform engage-
ment with the periphery of said stack of nested
fragile articles.

10. The invention defined in claim 9, wherein said
split sleeve is provided with internal corrugations
disposed orthogonally of the longitudinal axis of said
stack.

11. The method of packaging a stack of nested
fragile articles each having exposed annular rim por-
tions comprising the steps of:
providing a sheet of fluted material of a width less
than the peripheral dimension of said stack and a
length greater than the length of said stack, said
flutes running substantially parallel to said width
dimension;
wrapping the width of said sheet around said stack in
the provision of a split sleeve thereabout with said
flutes orthogonally disposed with respect to the
longitudinal axis of said stack and substantially
parallel to said exposed annular rim portions;
envolving said split sleeve and said stack with a heat
shrinkable film material; and
applying heat to said film material to shrink same
about said split sleeve and constrain the flutes of
the latter into uniform engagement with and to en-
trap respective ones of said exposed annular rim
portions.

12. The invention defined in claim 11, including the
further step of scoring said sheet of fluted material
orthogonally of said flutes prior to wrapping it about
said stack to constrain a multi-sided configuration on
said split sleeve and effect a multiplicity of discrete en-
gagements with each of said annular rim portions.