ABSTRACT: A method for making a carton which is lined with an impervious transparent material and is provided with a window over which the transparent material is disposed to permit viewing of contents.
METHOD OF MAKING A TIGHT PACKAGE PROVIDED WITH WINDOWS

The present invention relates to a method of making a tight package provided with windows, comprising a carton sleeve with suitable end closure flaps and an inner lining.

The method according to the invention includes the following steps:

a. Out of a carton sheet openings are punched out, intended to serve as windows in the completed carton.

b. The carton sheet is laminated over its whole surface with a lining of a transparent plastic film or the like, which also extends over and closes said openings.

c. Sleeve blanks are punched out in register with said openings.

d. The separate sheet blanks are glued, e.g., by a method known per se to form a sleeve-like structure.

e. The lining is provided with a bottom by attaching a wafer across the lower opening by sealing it to the lining along the edge of this opening and to the end closure flaps which are folded outwardly, the same material being preferably chosen for the lining and the wafer, after which the package is ready for filling and a subsequent sealing of the upper opening which is preferably sealed in the same way as the lower opening.

When making carton sleeves the blanks are normally made in the form of large sheets. It is these sheets, which are used as the basic material by the method according to the present invention. After the sheets are appropriately printed the desired windows are punched out of the sheet. After that, the sheets are covered with plastic either by a normal extrusion proceeding or by gluing a prefabricated plastic film to the carton sheets. After this the individual sleeve blanks are cut out in a normal way.

By the present invention many benefits are obtained. For example a very rational method of making a large number of windows at the same time. Due to the fact that the coating at the same time serves as a lining and covers the whole inner surface of the sleeve and the windows that the final package can be made very tight. Also the closure of the sleeve is made very tight due to the fact that a wafer can be very easily tightly attached to the lining of the end closure flaps folded outwardly along the edge of the mouth of the sleeve.

The invention is especially intended to be employed for a foldable carton sleeve intended for home freezing, it will be described in the following with reference to the accompanying drawings, which show such a sleeve.

FIG. 1 shows a plain packaging blank, which has been punched out of a larger carton sheet in accordance with the above description.

FIG. 2 shows at perspective a package erected and closed in one end, the package being made according to the method of the invention.

FIG. 3 finally shows the closed end of the same package in a position in which the package has been partly compressed.

The present package consists of a body part formed as a sleeve with four sidewalls 1, 2, 3 and 4. From these sidewalls four bottom flaps 5, 6, 7 and 8 and four top flaps 9, 10, 11 and 12 extend. Furthermore the blank shown in FIG. 1 comprises a sealing zone 13 with sealing flaps 14 and 15, which are meant to be joined with the sidewall 1 and the top and bottom flaps 9 and 5 respectively. Finally FIG. 1 shows a window opening 18 punched out of the carton blank and provided with a window 19. This window 19 consists preferably of a polyethylene film, which covers, in accordance with the invention, the whole inside of the sleeve, its flaps included.

The blank shown in FIG. 1 is intended to be folded to the shape shown in FIG. 2. In this position you close the end of the package, which later is meant to be its bottom, with a wafer 16. The wafer 16 is preferably made of the same material as the lining 19. Alternatively, the wafer 16 can be made of plastic-coated paper with good extension capacity. The wafer 16 is secured around the mouth of the package by the means of heat sealing. The cuts, which separate the end flaps of that end of the package, which is closed by the wafer, are preferably not cut too close to the body part of the sleeve. Due to this fact the tightening of the package is facilitated by obtaining a stretching of the lining film 19 in the four corners of the package at this end when the end flaps 5—8 are folded out to the position shown in FIG. 2.

In the example shown, two of the sidewalls of the package, namely the sidewalls 1 and 3 and the end flaps 5, 7, 9 and 11 joined with these sidewalls, are provided with central longitudinal crease lines 17, along which the package in empty condition can be pressed flat, the last mentioned sidewalls and the end flaps as well as the wafer 16 being foldable. How this folding is accomplished is shown in FIG. 3. In this figure the folding has however only begun. In practice the blank is folded completely flat, that is until the sides 2 and 4 and the end flaps 6 and 8 get into contact with each other.

Of course, the invention is not restricted only to the embodiment described above, but may be varied within the scope of the following claims. For instance the shape of the different flaps may be varied. That is also true about the choice of the material. Preferably liquidtight materials are used for the lining as well as for the wafer, so as to provide a guaranteed liquidtight and robust package having windows due to the fact that the wafer 16 is well protected inside the bottom flaps 5—8.

1. claim:

1. A method of making an impervious package suitable for liquids and having a window therein for viewing the contents comprising:

punching openings in a sheet of carton material at spaced locations therein, said openings forming windows in the finished packages,

laminating a sheet of transparent, flexible impervious material onto the entire sheet of carton material and over said punched openings, to form a liner for the finished packages,

stamping package blanks from said laminated sheet, said blanks being registered with said window openings and being provided with end flaps at each end of the blanks and a sealing flap along a side,

folding each blank along parallel lines between the flaps at the opposed ends thereof to form a sleeve-like rectangular structure with a window on one side thereof, and two pairs of opposed end flaps at each end thereof, the sealing flap extending along one side thereof and the transparent sheet forming a liner thereof,

sealing said sealing flap to the juxtaposed side to close the sleeve-like structure, folding the flaps at one end of the structure outwardly, securing a wafer of flexible, impervious material to the liner material on a pair of opposed outwardly folded end flaps, said wafer extending beyond the edges of said opposed end flaps so that the edges of said wafer are also secured to the liner material of the other pair of outwardly folded end flaps,

whereby the flaps and attached wafer may be folded inwardly and sealed to close the end of the sleeve-like structure for filling the package, and the end flaps at the opposite end may be sealed thereafter.

2. A method as claimed in claim 1 wherein the sheet of transparent flexible material is laminated to the sheet of carton material at all points on the adjoining surfaces.

3. A method as claimed in claim 1 wherein the sheet of transparent flexible impervious material and the wafer are of the same material and said material is heat sealable.