This invention relates to a package for drink-forming powders and more particularly to a package adapted for the distribution of drink-forming powders and the solubilization or dispersion thereof in a fluid or liquid without removing the package contents from it. The package of this invention can be conveniently stored and transported and can be reconstituted for use when desired. The package of this invention can be used for the deposit, storage, and transport of drink-forming powders in a form which is convenient and of high utility as a source of milk and also in the storage of powders which can be transformed into drinks or beverages, such as cocoa or cocoa and coffee powders, chocolate, etc.

In the illustration given, the top of carton 10 is provided with a releasable closure or cover flap 12. Cover flap 12, as shown more clearly in Figure 3, is coated on its underside with a pressure-sensitive, releasable adhesive 13 to permit the flap to be lifted and swung upwardly to disclose opening 14 therebelow. If desired, the portion 30 of the carton beneath flap 12 can be additionally or alternatively coated with a pressure-sensitive releasable adhesive as indicated on the carton blank of Figure 4. Cover flap 12 also has an outwardly extending tab portion 15 which has various purposes as will subsequently be described. Its rearwardly extending portion 12a is preferably secured with a permanent adhesive to carton 10, such as an adhesive being indicated at 30a in Figure 4. Both tab portion 15 and portion 12a are preferably separated from flap 12 by fold lines as shown in Figures 1 to 4.

The bottom of container 10 provides an outwardly extending tab 16 on the same side as the tab 15. As indicated in Figure 2, when tabs 15 and 16 are drawn apart with opening 14 exposed, container 10 will be open from the collapsed condition of Figure 1 to the expanded condition of Figure 2, thereby greatly increasing the volume within the container and providing space for the introduction of water through opening 14, which can readily be done by raising cover flap 12. Then the cover flap can be released over opening 14 by applying pressure thereto, and the added water and milk powder can be shaken together to form the reconstituted milk. After the reconstitution of the milk, container 10 will provide a convenient storage and dispensing vessel.

The container 10 can be formed by suitable folding operations. As a first step, glue-coated edge portion 17 can be secured to the opposite edge portion of the blank, thereby forming a tube which is rectangular or square in cross section, the necessary folds being made along corner fold lines 18, 19, 20 and 21. The top and bottom ends of this tube are then closed, the necessary folds being made along the dotted lines as indicated in Figure 4, so that the completed top and bottom portions of container 10 appear as shown in Figures 1 to 3 and 5. All of the adhesive indicated on the blank should be of the permanent type, except that which is applied to cover flap 12. As already indicated, this adhesive coating 13 should be of the releasable, pressure-sensitive type, and when the top of the container is formed it is preferred to leave the cover flap unsealed so that the completed carton will appear as shown in Figure 3. A measured quantity of powdered milk or other drink-forming powder can then be introduced through opening 14, with the aid of the sealing of flap 12. Alternatively, the bottom of container 10 can be closed, and the milk powder introduced through the open top end before the top is formed. At any rate, before the top of the carton is sealed but after the introduction of the milk powder, the carton should be collapsed so that it will appear as shown in Figure 1. In the illustration given, this is readily accomplished by
tucking side walls 22 and 23 inwardly along vertically extending fold lines 24 and 25. Fold lines 24 and 25 provide side walls 22 and 23 respectively with a pleated construction so that these side walls can extend inwardly when the carton is collapsed.

To provide for the collapsing of container 10 to a flat condition, it is also preferred to provide a fold line on side wall 26 near the bottom thereof but at a spaced distance about tab 16, this fold line being indicated in the drawings by the number 27. The other side 28 of the carton is fold-free and flat, as illustrated more clearly in Figures 4 and 5. By means of the fold line 27 on side 26, the carton bottom can be folded upwardly onto side wall 26, as illustrated in Figure 1.

As shown more clearly in Figure 2, the top of carton 10 has a central fold line 29 extending thereacross between pleated sides 22 and 23, which fold line provides a hinge for cover flap 12, while permitting the top to be doubled onto itself when the carton is collapsed, as illustrated more clearly in Figure 5.

Figures 6 and 7 of the drawing illustrate a modified form of the invention, Figure 6 showing a cut, scored and glue-coated blank from which the carton of Figure 7 can be formed. The corresponding parts of the carton of Figures 6 and 7 have been given the same numbers as the carton previously described, except that the numbers have been primed to indicate they refer to a modified construction. The method of forming the blank of Figure 6 into the carton of Figure 7 is substantially the same as that employed in forming the blank of Figure 4 into the carton of the other figures, as previously described. Therefore, it is not believed to be necessary to describe the specific folding and gluing procedure for the blank of Figure 6. However, it is desired to point out that the carton of Figure 7 when employed for the purpose of this invention possesses certain advantages. One of these advantages results from the fact that the pleated side panels 22' and 23' are of lesser width than the front and rear panels 26' and 28'. Consequently, when the carton 10' is collapsed, the inwardmost extension of the pleats, which will be represented by fold lines 18' and 25', will be short of the carton center line. In other words, even at their inwardmost extension, the pleated side panels will be spaced from each other. This has the advantage of permitting an easier filling of the cartons from a collapsed condition. The liquid entering through opening 12' will then flow downwardly to the carton bottom between the inwardly extending side panels much more freely than if the side panels were in contact with each other in the collapsed condition of the carton.

It will also be noted that the carton of Figure 7 is not provided with an outwardly extending tab portion at the bottom thereof, such as tab 16 in the first-described embodiment. With the construction of the container of Figure 7, it has been found that the weight of the water as it is introduced through opening 12' is sufficient to expand the carton from a collapsed to a fully erect condition. This then eliminates the necessity of using a pull tab to expand the carton before the introduction of water. More specifically, with the carton of Figure 7 collapsed and filled with a drink-forming powder, as illustrated for the first-described embodiment in Figure 5, the cover flap 12' is separated from carton portion 30' by means of tab 15', leaving opening 12' exposed. With the carton in an upright but still collapsed condition, water is then introduced through opening 12', flowing downwardly to the bottom of the carton between the inwardly extending side panels 18' and 22' and 23'. The weight of this water expands the carton by pushing the side panels outwardly until they reach the position shown in Figure 7. In this position, the carton can be completely filled with liquid for the reconstitution of the drink-forming powder therein.

While this invention has been described in relation to a particular embodiment thereof, it will be apparent to those skilled in the art that the invention is susceptible to other embodiments without departing from the basic ideas of the invention, and that many of the details set forth herein can be varied widely.

We claim:

A container adapted for use with a drink-forming powder, comprising a collapsible and expandable carton of waterproof sheet material, said carton in expanded condition comprising a rectilinear tube with a closed top and bottom, two oppositely-disposed side walls of said tube being pleated to extend inwardly when said carton is collapsed, the other two side walls of said tube being flat when said carton is collapsed, the top wall of said carton having a central fold line extending thereacross between said two pleated sides and arranged to permit said top to fold outwardly onto itself when said carton is collapsed, each of the centrally divided portions of said top wall forming an extension of the adjacent one of said flat side walls when said carton is collapsed, and releasable closure means comprising a flap extending from said central fold line of said top wall over one-half of said top wall, said covered portion of said top wall providing an opening of smaller dimensions than said flap.

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