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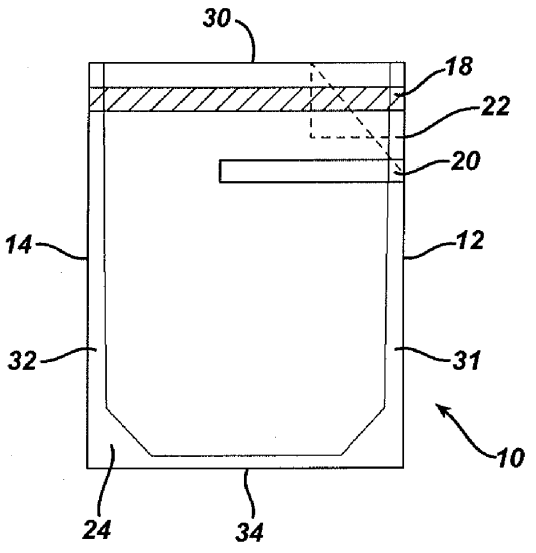
(54) Bag with venting means

(57) A package having a dual seal designed to permit venting of the package during microwave heating or cooking while minimizing the possibility for a messy and inadvertent escape of product onto, for example, the floor and walls of the microwave. The seal system (18,20) sets up a tortuous path for vapors and any splatter from food products, particularly liquid food products, to travel during venting.

Fig. 1



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Description

FIELD OF THE INVENTION

[0001] The present invention relates to packaging article, more particularly a stand up pouch for microwaving food products, particularly liquid food products, in the package.

BACKGROUND OF THE INVENTION

[0002] The amount of time available for preparation of meals has been steadily diminishing in recent years. Microwave cooking has been embraced by many consumers as one solution to the problem of dwindling meal preparation time. Microwave cooking often demands less attention than conventional oven cooking and is usually completed in a shorter period of time.

[0003] But it is not enough merely to shorten the amount of time which must be devoted to cooking. For instance, consumers would also prefer not to have to expend effort washing or cleaning the microwave at the completion of microwave cooking, to the extent that this can be avoided. There is a need, therefore, for microwave packaging which can meet a variety of consumer needs, including easy opening and minimization of time spent cleaning the microwave.

[0004] Numerous microwavable containers have been disclosed over the years.

[0005] Johnson et al. EP 823 388 (Kraft) discloses a stand up pouch for a microwavable food entrée. Notch 23 may be included to facilitate initiation of the opening procedure. Hughes et al., U.S. Published Patent Application No. US2004/0118839 relates to a stand up pouch that is a convenient vehicle to eating, which uses a single partial tear for venting. Igota, et al., US Patent No. 6,121,597, discloses a notched bag for microwave ovens capable of allowing escape of vapor generated during microwave heating using joints of different weaknesses.

[0006] Chow, et al., US Published Patent Application No 2002/0068668, discloses a method for producing an easy open, easy tear package using a laser. A microprocessor modulates the laser to create tear initiation areas along a score line.

[0007] Tang, US Published Patent Application No. 2002/0001645, is directed in Fig. 12 to a package made from an ACE sheet and an inner layer. The ACE sheet has nicks on each of two lines of weakness to permit sequential opening of three compartments. In the embodiment of Fig. 9j , prior to microwave cooking, the consumer tears the bag open along lines of weakness 34 to create a small opening allowing partial release of gas vapor during cooking. Following microwave cooking, the bag may be opened using further aligned lines of weakness 45. The further aligned lines of weakness 45 may extend substantially parallel to the lines 34, no greater than 15 mm apart.

[0008] None of the references create a tortuous path for venting as a means of guarding against splatter in the microwave, thereby being particularly useful for microwave heating liquid food products.

SUMMARY OF THE INVENTION

[0009] The present invention is directed to a new microwavable package having a seal so configured as avoid splatter of the product during heating or cooking in the microwave, thereby avoiding the need for the microwave to be washed after heating or cooking. The package is designed to permit venting of the package during cooking while minimizing the possibility for a messy and inadvertent escape of product onto, for example, the floor and walls of the microwave. The seal system sets up a tortuous path for vapors from food products, particular liquid food products, to travel during venting.

[0010] The package comprises a bottom end and a top end and first and second side wall ends extending between the bottom and top ends. A top seal is provided along the entire top end to seal the package for storage of a food product. A splatter guard seal is situated a sufficient distance below the top end, spanning from the first side wall end approximately half way along and parallel to the top end.

A tear area is provided which instructs cutting of at least a portion of the top end and of the first side wall. Removal of a portion of the top end along the tear area assists cooking of the package contents by permitting release of pressure accumulated within the package due to elevated temperatures. However, after the original top end is torn off, the splatter guard seal creates a tortuous path between the opening at the torn top end and the food contained within the package such that the chances of spattering of the product during cooking are essentially eliminated. The second partial seal, i.e., the splatter guard, prevents liquid food from splattering during microwave cooking.

[0011] Since a purpose of the dual seal is to permit the food to be cooked without splattering into the microwave, there will generally be a vertical distance between the seals, preferably one inch, especially at least 0.25 inch, and at most one and one half inches when the height of the pouch is 6 to 7 inches. The important thing is that the dual seals have an adequate vertical distance between them and that their configuration creates a tortuous path, so that the goal venting without spilling is achieved.

[0012] Optionally, but preferably, a label or graphics are provided on the pouch to indicate to the consumer where the pouch should be cut prior to cooking.

[0013] The pouches may be sealed using a variety of techniques known in the art, including for example by way of laser sealer or ultrasonic sealer.

[0014] Preferably, the package is a microwavable stand up pouch which, when food is contained therein, can be rested on the bottom end on a tabletop or other flat surface with the opening at the top. Typically the package will be a flexible package comprised of a microwav-

able material, preferably lamination containing polyethylene, polypropylene, polyester and/or nylon.

[0015] For a more complete understanding of the above and other features and advantages of the invention, reference should be made to the following detailed description of preferred embodiments and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWING

[0016]

Fig. 1 is a cross sectional view of a pouch, after sealing, according to the present invention;

Fig. 2 is a perspective view of the pouch of Fig. 1 filled with food product.

DETAILED DESCRIPTION OF THE INVENTION

[0017] The package of the invention will generally be made of flexible packaging, e.g., thermoplastic, and will typically take the form of a bag or pouch. The package material may, for instance, be a reverse printed multilayer lamination such as one comprising a layer of polyester and a layer of polypropylene.

[0018] With reference to Fig. 1, pouch **10** is prepared by placing two layers of the packaging lamination one atop the other, or folding a single layer, and sealing along the sides to provide first side wall end **12** and an opposing second side wall end **14** and side sealing margins **31, 32,** respectively, and along the bottom end **34** to provide bottom sealing margin **24.** Sealing may be effected, for example, by heat sealing, using laser or ultrasonic techniques for example. Areas of sealing prior to filling of the pouch are along these margins, leaving top end **30** open. Sealing margins **31, 32** may have a variety of cross sectional shapes, e.g., rectangular, triangular, circular, oval, etc.

[0019] Bottom end **34** is preferably provided with a gusset or other arrangement (not shown) at bottom end **34** to promote standing up of the pouch when it is filled with food, as is known in the art. In this way, once the package has been filled, it can be rested by means of bottom end **34.**

[0020] Prior to filling, pouch **10** is typically open only at top end **30** for filling, followed by sealing with the dual sealer according to the present invention. After pouch **10** is filled with microwavable food product **26,** it is sealed continuously along the upper edges of the sheets at upper end **30** of the pouch to form upper seal **18.** A second seal, splatter guard seal **20** is provided an effective distance, preferably 1 inch, below upper seal **18,** running parallel to seal **18** from first side wall **12** but only partially along the width of the pouch. Preferably, splatter guard seal **20** spans 0.50 the width of the package or less, such as 0.25 to 0.75 the width of the package.

[0021] Side sealing margin **31** is on side **12** has an end of the pouch which is to be cut open prior to microwave heating, referred to as tear area **22.** Optionally, but preferably, a label or graphics (not shown) are provided on pouch **10** to indicate to the consumer where pouch **10** should be cut prior to cooking. The label or graphics denote tear area **22** which promotes cutting of only a portion of top wall **30** of pouch **10** to create opening **23** for venting and subsequently for dispensing liquid food product. Cutting may be along a single line to remove a substantially triangular section, as shown in Fig. 2, or along two substantially perpendicular lines to remove a substantially rectangular area, as denoted by dotted lines in Fig. 1.

[0022] In use, when ready to microwave the product, a consumer cuts the pouch along tear area **22,** removing only a portion of top end **30** of pouch **10** to create opening **23.** Opening **23** permits pouch **10** to vent while it is being microwaved. However, after the original top end is torn off, the splatter guard seal **20** creates a tortuous path **28** (shown by the arrow in Fig. 2) between the opening at the torn top end and the food contained within the package such that the chances of spattering of the product during cooking are essentially eliminated. The tortuous path for venting vapors, indicated with an arrow in Fig. 1. When cooking is completed, the pouch is removed from the microwave and then the food product is allowed to be fed by gravity to exit from pouch **10** through opening **23.**

[0023] Suitable microwave ovens will typically operate at powers of 800 Watts to 1200 Watts.

[0024] Although not limited by size, preferred pouches according to the present invention will hold 5 weight oz to 15 weight oz of product, with most preferred capacities being 8 oz and 13.5 oz weight sizes. Although not limited by fill methods, preferably, product is filled to 0.75 of the full volume capacity of the pouches.

EXAMPLES

EXAMPLE 1

[0025] For all the examples, a 1000 W microwave was used. Pouches were filled to about 0.75 of full capacity. Pouch **10** according to the present invention was filled with product, sealed with top seal **18** and splatter guard seal **20.** Pouch **10** was then cut along tear area **22** and heated with product inside in a microwave on high for 90 seconds. No splatter was observed.

EXAMPLE A

[0026] A pouch having the same dimensions as that of Example 1 was provided, except that the splatter guard seal was not used. The pouch was then cut along a tear area as in Example 1. When heated in the same microwave with the same amount of the same product, food splattered onto the microwave floor and/or walls within 90 seconds of heating on high.

EXAMPLE B

[0027] A pouch having the same dimensions as that of Example 1 was provided, except that the splatter guard seal was not used and the pouch was cut along the entire width of the top end. When heated in the same microwave with the same amount of the same product, food splattered onto the microwave floor and/or walls within 90 seconds of heating on high.

[0028] Example 1 and comparative Examples A and B demonstrate how essential the splatter guard is for avoiding soiling of the microwave.

[0029] The term "comprising" is used herein in its ordinary meaning and means including, made up of, composed of, consisting and/or consisting essentially of. In other words, the term is defined as not being exhaustive of the steps, components, ingredients, or features to which it refers.

Claims

1. A package for food comprising:

   a bottom end and a top end;
   a first and second side wall ends extending between said bottom and top ends;
   a top seal along the entire top end of said package;
   a splatter guard seal situated a sufficient distance below said top seal along said top end, spanning from said first side wall end approximately half way along and parallel to said top end; and
   a tear area for removing a portion of said top end by facilitating cutting at least a portion of said side wall end.

2. The package according to claim 1 wherein said top seal and said splatter guard seal are spaced from each other by sufficient distance to create a tortuous path for venting vapors during microwave heating.

3. The package according to claim 1 or claim 2 wherein said seals are spaced from each other by 1 inch.

4. The package according to anyone of the preceding claims wherein a label or graphics are provided which, among other graphics, indicates to the consumer where said package should be cut along the tear area prior to cooking.

5. The package according to anyone of the preceding claims wherein said package contains food and rests on said bottom end.

6. The package according to anyone of the preceding claims wherein said package contains food which is liquid.

7. The package according to anyone of the preceding claims wherein it is made of a material which is microwavable.

Fig. 1/2

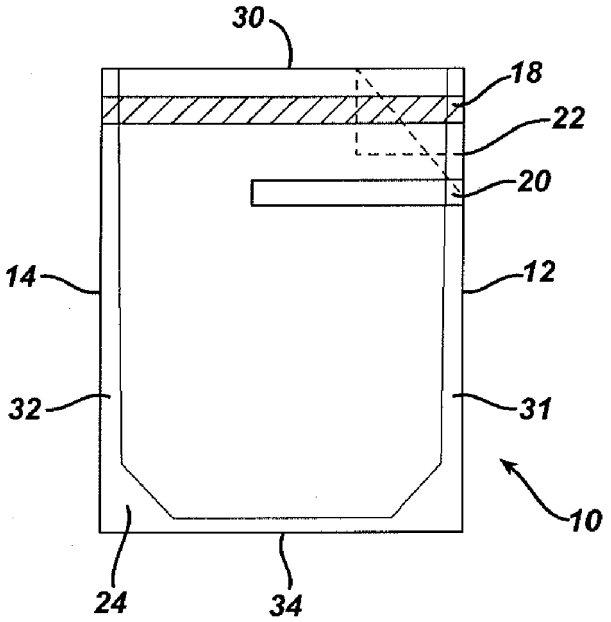
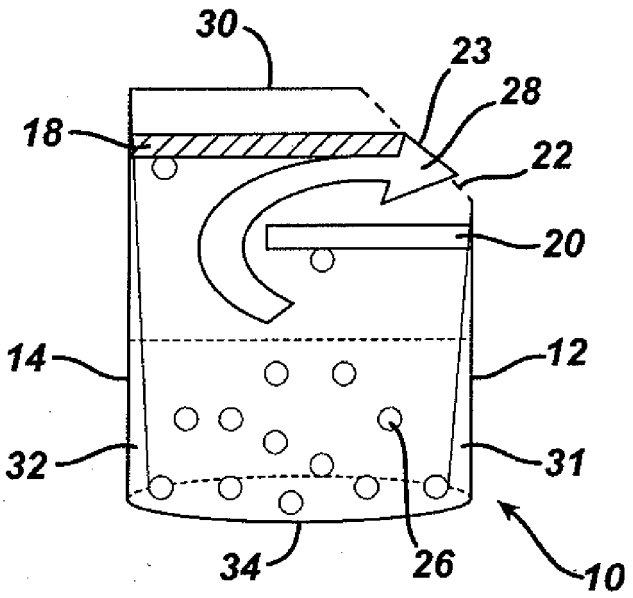


Fig. 2/2



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EUROPEAN SEARCH REPORT

Application Number
EP 08 17 1735

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 11 278556 A (DAINIPPON PRINTING CO LTD) 12 October 1999 (1999-10-12) * abstract; figure 2 *	1,2,5,7	INV. B65D33/01 B65D75/00 B65D81/34
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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 February 2009	Grentzius, Wim

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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