

HINGE LID CONTAINER HAVING HERMETIC SEAL

The present invention relates to a hinge lid container having a sealable coating layer which provides the container with a hermetic seal prior to the first opening. The containers of the present invention find particular application as containers for smoking articles, such as filter cigarettes.

It is known to package consumer goods in hinge lid containers formed from folded laminar blanks. For example, elongate smoking articles, such as cigarettes and cigars, are commonly sold in hinge lid packs having a box for housing the smoking articles and a lid connected to the box about a hinge line extending across the back wall of the container. Such packs are typically constructed from one-piece laminar cardboard blanks. In use, the lid is pivoted about the hinge line to open the pack and so gain access to the smoking articles held in the box.

Hinge lid containers are commonly used for packaging cigarettes and other consumer goods which are adversely affected by prolonged contact with air or moisture. Prior to the first opening, a filled container will therefore typically be wrapped in an outer wrapper, which provides a barrier layer against the ingress or emersion of air, moisture, odours or flavours into and out of the container during storage. Transparent plastic materials, such as polypropylene, are commonly used for this purpose. The provision of the outer wrapper ensures that the consumer goods are kept fresh for a longer period of time and increases the shelf life of the consumer goods. However, the effectiveness of the outer wrapper depends on the quality of the seal provided at the ends of the container, where the outer wrapper is folded and sealed.

Conventional cigarette box packaging consists of a bundle of cigarettes wrapped in a paper/metal foil laminate sheet, received in a container typically formed of carton board. The container usually has a hinged lid to provide access to the cigarette bundle. The container is often formed from a pre-printed blank of board stock which is folded and wrapped around the cigarette bundle. The container is wrapped in a heat sealable clear film, most commonly polypropylene with an embedded tear tape to assist in easy opening.

Of these packaging components, only the outermost film contributes in a significant manner to the shelf life stability of the packaged cigarettes. The plastics film acts as a moisture barrier but its effectiveness is highly dependent upon obtaining adequate seals in the folded, overlapped areas of the film wrap. Nevertheless, the low moisture barrier transmission rate through the plastics film helps maintain the starting moisture and other volatile components of the cigarettes as manufactured, when the packaged cigarettes are exposed to environments that have either a higher or lower relative humidity than the internal humidity of the cigarette pack. Whilst polypropylene film has commonly been employed as the outer wrapping, other film materials have

-2-

been used which offer reduced moisture transmission rates, for example vacuum metallised plastics films but these materials are still highly dependent upon achieving a proper seal of the folded, overlapped areas of the film when wrapped around the container.

It has been proposed, for example in WO-A-2009/083344, to apply a continuous plastic
5 coating layer over a filled container in order to provide an improved seal.

It would be desirable to provide a novel way to prevent the ingress or emersion of air, moisture, odours or flavours into or out of the container during storage.

According to the invention there is provided a container for consumer goods comprising: a box for housing the consumer goods; an inner frame mounted within the box and having an upper
10 portion extending above the upper edges of the box; and a hinge lid connected to the box along a hinge line and pivotable about the hinge line between an open position and a closed position, in which the inner surfaces of the hinge lid are in contact with the outer surfaces of the upper portion of the inner frame. The inner surfaces of the hinge lid and the outer surfaces of the upper portion of the inner frame are at least partially covered by a sealable coating layer of a sealable material. The
15 material may be capable of being sealable to itself, to other areas of the container that are non-covered by a sealable coating layer, like for example coated cardboard, or to both itself and other non-covered areas of the container. Prior to the first opening of the hinge lid the sealable coating layers on the contacting surfaces of the hinge lid and the inner frame are bonded to each other to form a hermetic seal.

20 The 'inner surfaces' of the components of containers of the present invention are the surfaces that are facing inwards towards the interior of the container and the consumer goods within the box. The inner surfaces typically provide the inside surfaces of the container when the hinge lid is in the closed position. The components of the container comprise the box and the lid of the container as well as the inner frame.

25 The 'outer surfaces' of the components of container of the present invention are the surfaces that are facing outwards towards the exterior of the container and away from the consumer goods within the box. In some cases, the outer surfaces of a component, such as the box, may also provide the outer surfaces of the container when the hinge lid is in both open position and the closed position. In other cases, the outer surfaces of a component may not form the outer
30 surfaces of the container in both the open position and the closed position, but may instead be covered by the panels of other components of the container when the hinge lid is in the open or closed position, or both. For example, the outer surfaces of the upper portion of the inner frame are covered by the hinge lid when the hinge lid is in the closed position. The remainder of the outer surfaces of the inner frame are covered by the box walls in both positions.

The term 'sealable' is used to refer to a type of adhesive material that is capable of forming a seal upon exposure to specific conditions, such as heat, pressure, ultrasound or UV light. Prior to exposure to these specific conditions, the sealable material will not typically adhere to itself or other surfaces of the container. This means that it can be conveniently applied to the laminar blanks for forming the container according to the present invention during production of the blanks, prior to the filling and assembly of the container. In the container of the present invention, the sealable material is capable of sealing to itself or to other areas of the container, in order to secure the hinge lid in a closed position and provide a water vapour tight, hermetic seal between the hinge lid and the inner frame until the container is opened for the first time.

A 'hermetic seal' according to the invention is a form of water vapour tight closure which substantially prevents moisture and humidity from migrating through the container from the exterior to the interior where the consumer goods are housed and also from the interior of the container towards the exterior of the container. This ensures that the moisture inside of the container remains substantially constant during the time the container is closed. This advantageously increases the shelf life of the consumer goods housed within the container.

Preferably, the moisture transmission rate through the hermetic seal of containers according to the invention is less than 15 grams of water per day per square meter when measured according to the ASTM method D3079 – 94. More preferably, the moisture transmission rate through the hermetic seal of containers according to the invention is between about 0.2 grams of water per day per square meter and about 8 grams of water per day per square meter of surface area of the seal.

In closed hinge lid containers, the main way in which gases such as oxygen or water vapour can permeate through to the consumer goods housed inside the box of the container is likely to be through any gaps between the hinge lid and the box or the inner frame. In hinge lid containers according to the invention, the sealable coating layer is therefore provided on the contacting surfaces of the hinge lid and the inner frame in order to provide a hermetic seal such that gases can no longer enter the container through such gaps.

Advantageously, the hermetic seal provided by the sealable coating layer provides an effective barrier layer such that an outer wrapper or coating layer is no longer required in order to achieve the desired level of freshness of the consumer goods within the container. Thus, the final step of overwrapping the container can be eliminated from the wrapping process. Therefore, neither the overwrapping apparatus nor the wrapping material is required. The production process of the containers according to the invention is therefore more efficient than existing processes, both in terms of time and cost.

-4-

Furthermore, the hermetic seal formed by the bonding of the sealable coating layers advantageously provides a form of tamper evident seal which enables the consumer to tell whether or not the container has been previously opened or tampered with in any way. The hermetic seal should be intact at the point of sale of the filled container and must be broken by the consumer in order to access the consumer goods. The presence of an unbroken seal between the hinge lid and the inner frame indicates that the hinge lid has not yet been opened and the consumer goods have not been accessed. It may also reflect to the consumer that the consumer goods within the container are still fresh, since the hermetic seal has not yet been broken.

Advantageously, the sealable coating material can be applied to the surfaces of the container during production of the laminar blanks, so that the process of assembling and filling the containers according to the invention can be carried out using conventional apparatus and methods. The only necessary modification to the process is to subject the filled container to the necessary conditions, such as heat or pressure, to form the bond between the sealable coating layers on the hinge lid and the inner frame. Alternatively, the panels are sealed to each other successively in separate sealing steps.

In order to provide a water vapour tight seal between the hinge lid and the inner frame, the sealable coating layer preferably covers the entire surface area of the outer surfaces of the inner frame and the inner surfaces of the hinge lid that are brought into contact with each other when the hinge lid is in the closed position. This further prevents the ingress of gases into the container through any gaps or breaks in the seal.

The full coverage of the sealable coating layer can conveniently be achieved by coating an entire surface of the laminar blank or blanks that are used to form the hinge lid and inner frame. For example, the inner surface of the laminar blank for forming the hinge lid (and optionally the box) of containers according to the invention may be fully covered with a coating layer of the sealable material. The 'inner surface' of the laminar blank refers to the surface on the side of the blank that will form the majority of the inner surfaces of the hinge lid and box when the container is assembled. Typically, the majority of the opposite, outer surface will be printed with the graphics and text to be displayed on the exterior of the assembled container.

Once sealed, the sealable material should provide a sufficiently strong seal between the hinge lid and the inner frame that the seal remains hermetic and the hinge lid remains securely in place before the first opening of the container. However, it must also be possible for the consumer to be able to readily break the seal and separate the hinge lid from the inner frame in order to access the consumer goods, without damaging the container. The sealing force between the hinge

lid and the inner frame is therefore preferably between 2 Newton and 7 Newton, preferably, between about 2 Newton and 4 Newton.

Preferably, the sealable coating layer on the outer surfaces of the inner frame extends below the level of the free edges of the box, so that the sealable coating layer can additionally be used to provide a hermetic seal between the inner frame and the inner surfaces of the box. This is particularly convenient in cases where the inner surface of the laminar blank or blanks forming the hinge lid and box are fully coated with the sealable material. Advantageously, this also simplifies the positioning of the inner frame within the box as there is sealable material below and above the upper edge of the box front wall. The seal between the inner frame and the box ensures that the inner frame remains in place within the box and also further improves the sealing of the container prior to first opening.

The sealable coating layer may be formed of any suitable sealing material that is capable of sealing under certain conditions that can conveniently be provided during the production of the filler containers and without adversely affecting the consumer goods within the container. Preferred sealable materials include heat sealable materials which become tacky and can seal upon the application of heat. Suitable sealable materials include non water based materials or water based materials that can later become resistant to water or water vapour. For example, suitable sealable materials but are not limited to polyolefins, PVDC (polyvinylidene chloride) resin and adhesive waxes. Preferably, the outer wrapper is coated with a sealable polyolefin like one or a combination of: polyethylene, polypropylene, polybutylene, an ethylene-propylene copolymer, a propylene-butylene copolymer, an ethylene-butylene copolymer, an ethylene-propylene-butylene terpolymer.

The sealable coating layer is preferably applied in the form of a solvent, oil or water borne emulsion or dispersion of at least one of the coating materials indicated above. The dry weight of the coating layer is preferably between about 1 gram per square meter and about 100 grams per square meter (gsm).

Containers according to the invention will typically be assembled in the conventional way, by folding one or more laminar blanks around the consumer goods and sealing overlying panels of the laminar blanks together in order to retain the container in the assembled shape. This may be achieved using conventional glues or adhesives. However, using standard gluing techniques, the adhesive used to seal overlying panels of the container is not typically applied to the entire surface area of the contacting surfaces. Therefore, even though the overlying panels are successfully secured together, there may be gaps or channels extending between the exterior of the container and the interior of the container where no adhesive is provided. This means that the seal between

-6-

the overlying panels may not be fully water vapour tight and so air or moisture can migrate into the container and adversely affect the consumer goods.

In preferred embodiments of the present invention at least one wall of each container comprises an inner panel and an outer panel overlying the inner panel, wherein the contacting surfaces of the inner panel and the outer panel are covered by a sealable coating layer of a sealable material that is capable of sealing and wherein the sealable coating layers on the contacting surfaces of the inner panel and the outer panel are bonded to each other to form a hermetic seal. Preferably, the area that is covered by the sealable coating is about 100 percent of the contacting surface. Alternatively, through an appropriate choice of pattern, a lower coverage may be achieved, for example between about 30 percent and about 100 percent of the contacting surface. The sealable material between the overlying inner panel and outer panel is preferably the same material as used to provide the hermetic seal between the hinge lid and the inner frame, as described above.

Preferably, the sealable material is used in place of the conventional adhesive to hermetically seal all overlying panels of the container, in addition to sealing the hinge lid and the inner frame. For example, in a hinge lid container of a conventional construction, the sealable material may be used to seal overlying panels forming at the side walls and the bottom wall of the box as well as the side walls and the top wall of the hinge lid. In this way, all of the seals provided in the container are water vapour tight and the migration of moisture into the container can be further reduced.

As with the contacting surfaces of the hinge lid and the inner frame, the sealable material should preferably cover the entire surface area of the contacting surfaces of the inner panel and the overlying outer panel so that there are no gaps or breaks in the resultant seal through which air or moisture may be able to permeate.

Preferably, the sealing force between the overlying panels is adjusted so that the seal remains hermetic and is sufficiently strong that the container is able to withstand the stresses to which it may be subjected within the supply chain, or during use. Unlike the seal between the hinge lid and the inner frame, it is generally not desirable for the seal between overlying panels of the container to be breakable by the consumer. Furthermore, the seals should remain intact when the necessary force is applied to break the seal between the hinge lid and the inner frame. The sealing force between the overlying panels is therefore at least about 4 Newton and is preferably at least the same as the sealing force between the hinge lid and the inner frame, and more preferably greater.

-7-

Preferably, the sealable coating layer is applied to the corresponding panels of the laminar blank or blanks forming the box and hinge lid such that the panels are fully covered. In preferred embodiments, the inner surface of the laminar blank or blanks is fully covered with the sealable coating layer, as described above. In addition, the outer surfaces of the panels forming the inner panels of the overlying panels in the hinge lid and box must be fully covered with the sealable coating layer. If desired, both sides of the laminar blank or blanks may be fully covered with the sealable coating layer.

Preferably, the consumer products within the box of containers according to the invention are wrapped in an inner liner to further ensure that the freshness of the consumer goods is retained during storage. Preferably, the inner liner comprises one or more lines of weakness defining an opening tab, wherein the opening tab is separable from the remainder of the inner liner to provide an access opening in the inner liner through which the consumer goods can be removed. If desired, a resealable adhesive label may be provided on the opening tab in the inner liner such that the opening tab can be resealed in the closed position between uses.

In certain preferred embodiments, the opening tab of the inner liner is adhered to an inner surface of the hinge lid such that movement of the hinge lid to the opening position brings about separation of the opening tab from the remainder of the inner liner to form the access opening. The opening tab may be directly adhered to the inner surface of the hinge lid, or may be adhered to the surface by means of an adhesive label.

Preferably, the inner liner is at least partially in contact with the box and the outer surface of the inner liner and the inner surface of the box are at least partially covered by a sealable coating layer of a sealable material. Preferably, the sealable coating layers on the contacting surfaces of the inner liner and the box are bonded to each other. The sealing force between the inner liner and the box is preferably at least about 4 Newton. The sealable material used to bond the inner liner and the box is preferably the same as that used to form the hermetic seal between the hinge lid and the inner frame. The sealable material secures the inner liner to the box so that the opening tab can be readily separated from the remainder of the inner liner without displacing the inner liner, or pulling the entire inner liner out from the box.

Preferably, the inner liner is formed of metal foil or metallised paper.

In preferred embodiments, the laminar blank for forming the box is already fully covered on the inner surface with the sealable coating layer, as described above. In order to achieve the seal between the inner liner and the box the sealable coating layer should also be applied to at least a part of the outer surface of the inner liner.

Preferably, containers according to the invention further comprise a layer of a resealable adhesive applied over the sealable coating layer in one or more areas on the outer surface of the inner frame, wherein the resealable adhesive releasably seals the hinge lid in the closed position. Once the hermetic seal has been broken, the resealable adhesive allows for the hinge lid to be sealed in the closed position between uses. This way, the hinge lid does not become inadvertently opened. This ensures that the freshness of the consumer goods is retained as much as possible after the first opening of the container and also prevents dust or other foreign particles from getting into the container and coming into contact with the consumer goods.

Preferably, the resealable adhesive will provide sufficient adhesion for the hinge lid to be resealed in the closed position at least as many times as there are consumer goods in the container so that it can be used to reseal the hinge lid until the container is empty.

Suitable materials for use as the resealable adhesive are known to the skilled person. In one example of the present invention, the resealable adhesive comprises an acrylate component. Preferably the resealable adhesive is applied in the form of a water borne emulsion or dispersion comprising the adhesive component. The dry weight of the resealable adhesive is preferably between about 1 gram per square meter and about 50 grams per square meter (gsm).

Preferably, the front wall of the hinge lid comprises a pull tab extending from the free edge of the front wall. Preferably, the front wall of the box comprises a cut out portion at the free edge, corresponding in size, shape and position to the pull tab of the hinge lid, so that the pull tab can lie within the cut out when the hinge lid is in the closed position. The pull tab facilitates the opening of the hinge lid and in particular, the breakage of the hermetic seal between the hinge lid and the inner frame during the first opening of the container. If desired, the pull tab may be connected to the front wall along a hinge line, such as a fold line, to further facilitate the grasping of the pull tab by the consumer during use. The pull tab may extend part way across the free edge of the front wall of the hinge lid, or may extend all of the way across the free edge. Where the pull tab extends only part way across the free edge, the pull tab is preferably provided substantially in the centre of the free edge of the front wall.

In certain preferred embodiments of the invention, the container further comprises an adhesive tear tape applied over one or more of the free edges of the hinge lid prior to the first opening of the hinge lid in order to seal the hinge lid in the closed position. The adhesive tear tape provides an additional hermetic seal around at least a part of the junction of the hinge lid and the inner frame or the corresponding free edge of the box when the hinge lid is in the closed position. This further improves the closure seal of the hinge lid. The adhesive tear tape must be removed from the container before the hinge lid can be moved to an open position.

Preferably, the adhesive tear tape extends at least along the junction of the edge of the front wall of the hinge lid with the inner frame or the free edge of the box front wall. Optionally, the adhesive tear tape may also extend along the junction of the edges of the side walls of the hinge lid with the inner frame or the corresponding free edges of the box side walls so that the tear tape covers the entire length of the free edge of the hinge lid. Preferably, where the adhesive tear tape extends along the junctions of the side walls of the container, the free edges of the side walls and front wall of the hinge lid are substantially horizontal. This way, the junction between the hinge lid and the inner frame or box extends around the container in a substantially straight line. This facilitates the application and removal of the adhesive tear tape.

Suitable materials for forming the tear tape would be known to the skilled person. In one example, a tear tape of OPP (oriented polypropylene) is provided.

Alternatively or in addition to the adhesive tear tape, containers according to the present invention may further comprise an adhesive label provided over the free edges of the hinge lid and connecting the hinge lid to the box prior to the first opening of the container, wherein the label comprises a line of weakness substantially coinciding with a free edge of the hinge lid such that the label is separated along the line of weakness when the hinge lid is moved to the open position for the first time. The adhesive label provides another form of tamper evident seal, since the presence of an intact adhesive label provides evidence that the container has not yet been opened or tampered with.

Preferably, containers according to the invention further comprise a cut extending from each of the opposed ends of the hinge line across the back wall to the adjacent side edge of the back wall of the container. Preferably each cut extends no more than about 2 mm from the side edge. Typically, similarly positioned cuts are provided in conventional hinge lid containers in order to improve the opening and closing of the hinge lid. However, in the containers of the present invention the cuts are shorter in length than in conventional containers. For example, preferably the cuts in containers according to the invention are about half the length of the cuts in conventional containers. The shortening of the length of the cuts further reduces any potential pathways into the container through which oxygen, moisture or other gases could migrate during storage. Thus the shortened cuts further improve the seal provided by the containers according to the invention prior to first opening.

As described above, containers according to the invention are preferably formed of one or more laminar blanks which are provided with the sealable coating layers on the appropriate surfaces of the blank or blanks.

-10-

According to the invention there is provided a laminar blank for forming a container according to any preceding claim, the blank comprising a box defining portion and a hinge lid defining portion, wherein the inner surface of hinge lid defining portion is covered with a sealable coating layer of a sealable material that is capable of sealing. The laminar blank of the present invention is used in combination with a laminar blank for forming the inner frame, which is mounted within the box of the container and which is provided with a sealable coating layer on the outer surfaces, for bonding with the sealable coating layer on the inner surface of the hinge lid.

According to the invention there is also provided a method of hermetically sealing a container for consumer goods according to the invention, as described above, the method comprising: providing a sealable coating layer on the inner surfaces of the hinge lid and the outer surfaces of the inner frame; providing the consumer goods within the box portion; moving the hinge lid to a closed position; and bonding the sealable coating layers of the contacting surfaces of the inner frame and the hinge lid to provide a hermetic seal. The bonding step of the method of the present invention preferably comprises exposing the coating layers to heat, pressure, or both in order to bring about the adhesion of the sealable material.

Containers according to the invention may be in the shape of a rectangular parallelepiped, with right-angled longitudinal and right-angled transverse edges. Alternatively, the container may comprise one or more rounded longitudinal edges, rounded transverse edges, bevelled longitudinal edges or bevelled transverse edges, or combinations thereof. For example, the container according to the invention may comprise, without limitation:

- One or two longitudinal rounded or bevelled edges on the front wall, and/or one or two longitudinal rounded or bevelled edges on the back wall.

- One or two transverse rounded or bevelled edges on the front wall, and/or one or two transverse rounded or bevelled edges on the back wall.

- One longitudinal rounded edge and one longitudinal bevelled edge on the front wall, and/or one transverse rounded edge and one transverse bevelled edge on the back wall.

- One or two transverse rounded or bevelled edges on the front wall and one or two longitudinal rounded or bevelled edges on the front wall.

- Two longitudinal rounded or bevelled edges on a first side wall or two transverse rounded or bevelled edges on the second side wall.

Where the container comprises one or more rounded edges and is made from one or more laminar blanks, preferably the blanks comprise three, four, five, six or seven scoring lines or creasing lines to form each rounded edge in the assembled container. The scoring lines or creasing lines may be either on the inside of the container or on the outside of the container.

Preferably, the scoring lines or creasing lines are spaced from each other by between about 0.3 mm and 4 mm.

Preferably, the spacing of the creasing lines or scoring lines is a function of the thickness of the laminar blank. Preferably, the spacing between the creasing lines or scoring lines is between
5 about 0.5 and about 4 times larger than the thickness of the laminar blank.

Where the container comprises one or more bevelled edge, preferably the bevelled edge has a width of between about 1 mm and about 10 mm, preferably between about 2 and about 6 mm. Alternatively, the container may comprise a double bevel formed by three parallel creasing or scoring lines that are spaced such that two distinct bevels are formed on the edge of the container.

10 Where the container comprises a bevelled edge and is made from one or more laminar blanks, the bevel may be formed by two parallel creasing lines or scoring lines in the laminar blank. The creasing lines or scoring lines may be arranged symmetrically to the edge between a first wall and a second wall. Alternatively, the creasing lines or scoring lines may be arranged asymmetrically to the edge between the first wall and the second wall, such that the bevel reaches
15 further into the first wall of the container than into the second wall of the container.

Alternatively, the container may have a non-rectangular transversal cross section, for example polygonal such as triangular or hexagonal, or oval, semi-oval, circular or semi-circular.

Containers according to the invention find particular application as packs for elongate smoking articles such as, for example, cigarettes, cigars or cigarillos.

20 According to the invention there is provided a hermetically sealed pack of smoking articles comprising a container according to invention, as described above, with a plurality of smoking articles housed within the box, wherein the bond between the sealable coating layers on the inner surface of the hinge lid and the outer surface of the inner frame is intact to provide a hermetic seal.

It will be appreciated that through appropriate choices of the dimensions thereof, containers
25 according to the invention may be designed for different numbers of conventional size, king size, super-king size, slim or super-slim cigarettes.

Through an appropriate choice of the dimensions thereof, containers according to the invention may be designed to hold different total numbers of smoking articles, or different arrangements of smoking articles. For example, through an appropriate choice of the dimensions
30 thereof, containers according to the invention may be designed to hold a total of between ten and thirty smoking articles.

The smoking articles in the container may be arranged in different collations, depending on the total number of smoking articles. For example, the smoking articles may be arranged in a single row of six, seven, eight, nine or ten. Alternatively, the smoking articles may be arranged in

two or more rows. The two or more rows may contain the same number of smoking articles. For example, the smoking articles may be arranged in: two rows of five, six, seven, eight, nine or ten; three rows of five or seven; or four rows of four, five or six. Alternatively, the two or more rows may include at least two rows containing different number of smoking articles to each other. For
5 example, the smoking articles may be arranged in: a row of five and a row of six (5-6); a row of six and a row of seven (6-7); a row of seven and a row of eight (7-8); a middle row of five and two outer rows of six (6-5-6); a middle row of five and two outer rows of seven (7-5-7); a middle row of six and two outer rows of five (5-6-5); a middle row of six and two outer rows of seven (7-6-7); a middle row of seven and two outer rows of six (6-7-6); a middle row of nine and two outer rows of eight (8-9-8);
10 or a middle row of six with one outer row of five and one outer row of seven (5-6-7).

Containers according to the present invention may hold smoking articles of the same type or brand, or of different types or brands. In addition, both filterless smoking articles and smoking articles with various filter tips may be contained, as well as smoking articles of differing length (for example, between about 40 mm and about 180 mm), diameter (for example, between about 4 mm
15 and about 9 mm). In addition, the smoking articles may differ in strength of taste, resistance to draw and total particulate matter delivery. Preferably, the dimensions of the container are adapted to the length of the smoking articles, and the collation of the smoking articles. Typically, the outer dimensions of the container are between about 0.5 mm to about 5 mm larger than the dimensions of the bundle or bundles of smoking articles housed inside the container.

20 The length, width and depth of containers according to the invention may be such that, in the closed position, the resultant overall dimensions of the container are similar to the dimensions of a typical disposable hinge-lid pack of twenty cigarettes.

Preferably, containers according to the invention have a height of between about 60 mm and about 150 mm, more preferably a height of between about 70 mm and about 125 mm, wherein
25 the height is measured from the top wall to the bottom wall of the container.

Preferably, containers according to the invention have a width of between about 12 mm and about 150 mm, more preferably a width of between about 70 mm and about 125 mm, wherein the width is measured from one side wall to the other side wall of the container.

Preferably, containers according to the invention have a depth of between about 6 mm and
30 about 100 mm, more preferably a depth of between about 12 mm and about 25 mm wherein the depth is measured from the front wall to the back wall of the container (comprising the hinge between box and lid).

-13-

Preferably, the ratio of the height of the container to the depth of the container is in between about 0.3 to 1 and about 10 to 1, more preferably between about 2 to 1 and about 8 to 1, most preferably between about 3 to 1 and 5 to 1

5 Preferably, the ratio of the width of the container to the depth of the container is between about 0.3 to 1 and about 10 to 1, more preferably between about 2 to 1 and about 8 to 1, most preferably between about 2 to 1 and 3 to 1.

Despite being sealed, once filled, containers according to the invention may be shrink wrapped or otherwise over wrapped with a transparent polymeric film of, for example, high or low density polyethylene, polypropylene, oriented polypropylene, polyvinylidene chloride, cellulose film, or combinations thereof in a conventional manner. Where containers according to the invention are over wrapped, the over wrapper may include one or more a tear tapes. In addition, the over wrapper may be printed with images, consumer information or other data. The additional outer wrapper may advantageously protect the surface of the container for example against abrasion during handling.

15 As well as housing a bundle of smoking articles, the container may further comprise other consumer goods, for example matches, lighters, extinguishing means, breath-fresheners or electronics. The other consumer goods may be attached to the outside of the container, contained within the container along with the smoking articles, in a separate compartment of the container or combinations thereof.

20 The exterior surfaces of containers according to the invention may be printed, embossed, debossed or otherwise embellished with manufacturer or brand logos, trade marks, slogans and other consumer information and indicia.

The invention will be further described, by way of example only, with reference to the accompanying drawings in which:

25 Figure 1 shows a front, perspective view of a hinge lid container according to the present invention with the hinge lid in an open position;

Figure 2a shows a top view of a laminar blank for forming the box and hinge lid of the container of Figure 1;

30 Figure 2b shows a top view of a laminar blank for forming the inner frame of the container of Figure 1; and

Figure 3 shows a front, perspective view of another hinge lid container according to the present invention with the hinge lid in a closed position.

The hinge lid container 2 shown in Figure 1 is a rectangular parallelepiped and comprises a box 10 and a lid 20 that is hinged to the box 10 along a hinge line 45 extending substantially

-14-

horizontally along the back wall of the container 2. A wrapped bundle of cigarettes (not shown) is housed in the box 10 of the container 2. The overall size and construction of the box 10 and lid 20 of container 2 are substantially the same as that of a standard hinge lid cigarette pack.

The box 10 has a box front wall 12, a box left side wall 14, a box right side wall 15, a box back wall, and a box bottom wall. The upper side of the box 10 is open, to provide an upper opening through which the cigarettes can be removed. The box front wall 12 comprises a semi-circular cut out 16 at the upper free edge 18. Each of the box side walls 14,15 is formed of an inner panel 14a,15a and an overlying outer panel 14b,15a, wherein the inner panel and the outer panel are sealed together, as described below.

The terms "front", "back", "upper", "lower", "side", "top", "bottom" and other terms used to describe relative positions of the components of containers 2 according to the invention refer to the container in an upright position with the lid 20 at the top end and the hinge on the back. The terms "left" and "right" are used with reference to side walls of the container when the container 2 is viewed from the front in its upright position. When the container in the upright position is open, the cigarettes contained in the box 10 may be removed from the upper end of the container 2.

The lid 20 has a lid front wall 22, a lid left side wall 24, a lid right side wall 25, a lid back wall and a lid top wall. A semi-circular pull tab 26 extends from the free edge 28 of the lid front wall 22. The pull tab 26 corresponds in size, shape and position to the semi-circular cut out 16 in the box front wall 12. Each of the lid side walls 24,25 is formed of an inner panel 24a,25a and an overlying outer panel 24b,25a, wherein the inner panel and the outer panel are sealed together, as described below.

When the container 2 is closed, the free edges of the walls of the lid 20 abut the free edges of the walls of the box 10 along a line of abutment and the pull tab 26 fits within the semi-circular cut out 16. In the closed position, the walls of the lid 20 therefore form extensions of the corresponding walls of the box 10 to define the walls of the container 2.

An inner frame 30 is mounted within the box 10 of the container 2. The inner frame 30 comprises an inner frame front wall 32, an inner frame left side wall 34 and an inner frame right side wall which are connected to the inner surface of the box front wall 12, box left side wall and box right side wall 14, respectively. The inner frame front wall 32 includes a rectangular cut out 36 at the top free edge of the inner frame front wall 32 in order to facilitate removal of the cigarettes from the box 10. The inner frame front wall 32 is of sufficient length that it extends below the cut out 16 provided in the box front wall 12.

The box 10 and lid 20 of the container 2 are formed from the single laminar blank 102 shown in Figure 2a. Dotted lines indicate fold lines in the blank. The laminar blank 102 comprises

-15-

a box-defining portion 110 and a lid-defining portion 120 connected along the hinge line 45. The inner surface of the laminar blank 102 is fully coated with a sealable coating layer formed of a polyolefin material that is capable of sealing. The inner surface of the laminar blank 102 provides the inner surfaces of the hinge lid 20 and the box 10 and the sealable coating layer therefore covers the inner surfaces of the assembled container 2. The outer surface of the laminar blank 102, as shown in Figure 2a, is additionally coated with a sealable coating layer on the panels shown as hatched in Figure 2a. In the assembled container, these panels correspond to the inner panels 14a,15a of the box side walls and the inner panels 24a,25a of the lid side walls.

The inner frame 30 of the container 2 is formed of the laminar blank 130 shown in Figure 2b. Dotted lines indicate fold lines in the blank. The outer surface of the laminar blank 130, as shown in Figure 2b, is coated with a sealable coating layer 138 in the areas of the frame front wall 32 and frame side walls 34,35 that are located proximate the free edges of the box in the assembled container. The sealable coating layer also extends down the frame front wall to cover the area of the wall that is in contact with the box front wall in the assembled container. As in Figure 2a, the sealable coating layer is shown as hatched in Figure 2b.

During assembly of the container from the laminar blanks 102,130, the inner frame 30 is mounted in the box portion such that the sealable coating layer 138 is provided in the correct position proximate the free edges of the box 10. The sealable coating layer on the lower part of the frame front wall 32 is brought into contact with the sealable coating layer on the inner surface of the box front wall 12 and the sealable coating layers are then heated so that the layers bond to each other to provide a hermetic seal between the frame front wall 32 and the box front wall 12.

After assembly of the container 2 from the laminar blanks and the filling of the container with the bundle of smoking articles, the hinge lid 20 is closed so that the sealable coating layer on the inner surfaces of the hinge lid 20 is brought into contact with the sealable coating layer on the outer surfaces of the inner frame 30. The sealable coating layers are then heated so that the layers bond to each other to provide a hermetic seal between the hinge lid 20 and the inner frame 30.

In order to open the container 2 for the first time, the consumer may grasp the pull tab 26 and pull the hinge lid 20 to break the hermetic seal between the hinge lid 20 and the inner frame 30 and to subsequently pivot the hinge lid 20 backwards towards the open position shown in Figure 1.

In alternative embodiments of the container 2 a resealable adhesive is provided on at least the frame front wall 32 so that the hinge lid can be resealed in the closed position between uses, even after the hermetic seal provided by the coating layers has been broken.

The container 50 shown in Figure 3 is similar in construction to the container 2 shown in Figure 1 and comprises a hinge lid 20' connected to a box 10' for housing the smoking articles.

-16-

The hinge lid is hermetically sealed to the inner frame as a result of the bonding of the sealing coating layers, as described above for container 2. In addition, in the container 50 a tear tape 52 is provided over the line of abutment between the free edges of the hinge lid 20' and the free edges of the box portion 10'. The line of abutment is different to that of container 2, since it extends in a straight, horizontal line across the front wall and both side walls of the container. As a result, the position of the hinge line 45 is above the level at which the free edges of the lid side walls meet the back wall of the container in the closed position of the hinge lid. In order to maintain the straight line of abutment, no pull tab or cut out are provided in the lid and box front walls.

The container 50 is shown in Figure 3 with the tear tape 52 partially removed. In order to open the container 50 for the first time, the tear tape 52 must be fully removed from the container and the hermetic seal between the hinge lid 20' and the inner frame broken, as described above.

CLAIMS

1. A container for consumer goods comprising:

a box for housing the consumer goods;

an inner frame mounted within the box and having an upper portion extending above the upper edges of the box; and

a hinge lid connected to the box along a hinge line and pivotable about the hinge line between an open position and a closed position, in which the inner surfaces of the hinge lid are in contact with the outer surfaces of the upper portion of the inner frame;

wherein the inner surfaces of the hinge lid and the outer surfaces of the upper portion of the inner frame are at least partially covered by a sealable coating layer of a sealable material and wherein prior to the first opening of the hinge lid the sealable coating layers on the contacting surfaces of the hinge lid and the inner frame are bonded to each other to form a hermetic seal.

2. A container according to claim 1 wherein the sealable material is selected from the group consisting polyolefin, PVDC or an adhesive wax.

3. A container according to claim 1 or 2 wherein at least one wall of the container comprises an inner panel and an outer panel overlying the inner panel, wherein the contacting surfaces of the inner panel and the outer panel are covered by a sealable coating layer of the sealable material and wherein the sealable coating layers on the contacting surfaces of the inner panel and outer panel are bonded together to form a hermetic seal.

4. A container according to any of claims 1 to 3 wherein the hinge lid and the box are formed from one or more laminar blanks and wherein the inner surfaces of the one or more laminar blanks are fully covered by the sealable coating layer.

5. A container according to claim 5 wherein the consumer products are wrapped in an inner liner comprising one or more lines of weakness defining an opening tab, wherein the opening tab is adhered to an inner surface of the hinge lid such that movement of the hinge lid to the opening position brings about separation of the opening tab from the remainder of the inner liner to provide an access opening in the inner liner.

-18-

6. A container according to any preceding claim wherein the consumer products are wrapped in an inner liner at least partially in contact with the box, wherein the outer surface of the inner liner and the inner surface of the box are at least partially covered by a sealable coating layer of the sealable material and wherein the sealable coating layers on the contacting surfaces of the inner
5 liner and the box are bonded to each other.

7. A container according to any preceding claim further comprising a layer of a resealable adhesive applied over the sealable coating layer in one or more areas on the outer surface of the inner frame, wherein the resealable adhesive releasably seals the hinge lid in the closed position.

8. A container according to any preceding claim wherein the front wall of the hinge lid comprises a pull tab extending from the free edge of the front wall.

9. A container according to any preceding claim further comprising an adhesive tear tape
15 applied over one or more of the free edges of the hinge lid prior to the first opening of the hinge lid in order to seal the hinge lid in the closed position.

10. A container according to any preceding claim wherein the sealing force of the bond between the sealable coating layer on the inner surface of the hinge lid and the sealable coating layer on the
20 outer surface of the inner frame is between 4 Newton and 7 Newton.

11. A container according to any preceding claim further comprising an adhesive label provided over the free edges of the hinge lid and connecting the hinge lid to the box portion prior to the first opening of the container, wherein the label comprises a line of weakness substantially coinciding
25 with a free edge of the hinge lid such that the label is separated along the line of weakness when the hinge lid is moved to the open position for the first time.

12. A container according to any preceding claim comprising a cut extending from opposed ends of the hinge line across the back wall to the adjacent side edge of the back wall of the
30 container, wherein each cut extends no more than 2 mm from the side edge.

13. A hermetically sealed pack of smoking articles comprising a container according to any preceding claim with a plurality of smoking articles housed within the box portion, wherein the bond

-19-

between the sealable coating layers on the inner surface of the hinge lid and the outer surface of the inner frame is intact to provide a hermetic seal.

14. A method of hermetically sealing a container for consumer goods according to any
5 preceding claims comprising: providing a sealable coating layer on the inner surfaces of the hinge lid and the outer surfaces of the inner frame; providing the consumer goods within the box portion; moving the hinge lid to a closed position; and bonding the sealable coating layers of the contacting surfaces of the inner frame and the hinge lid to provide a hermetic seal.