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(54) **Container with adhesive label with improved lid bonding**

(57) A container for consumer goods comprises: a housing comprising a box and a lid hinged to the box; a package of consumer goods within the housing comprising an access opening for removing the consumer goods; and an adhesive label covering the access opening. The adhesive label is at least partially releasably affixed to the inner package by a resealable adhesive provided on a sealing area of the inner surface of the adhesive label.

The container comprises a transformable substrate provided on a first area of the inner surface of the lid or on an affixing area of a surface of the adhesive label or on both. The affixing area of the adhesive label overlies the transformable substrate and the first area of the inner surface of the lid. The substrate can be transformed into an adhesive by exposure to energy, such as heat, electromagnetic radiation, ultrasound and chemical energy.

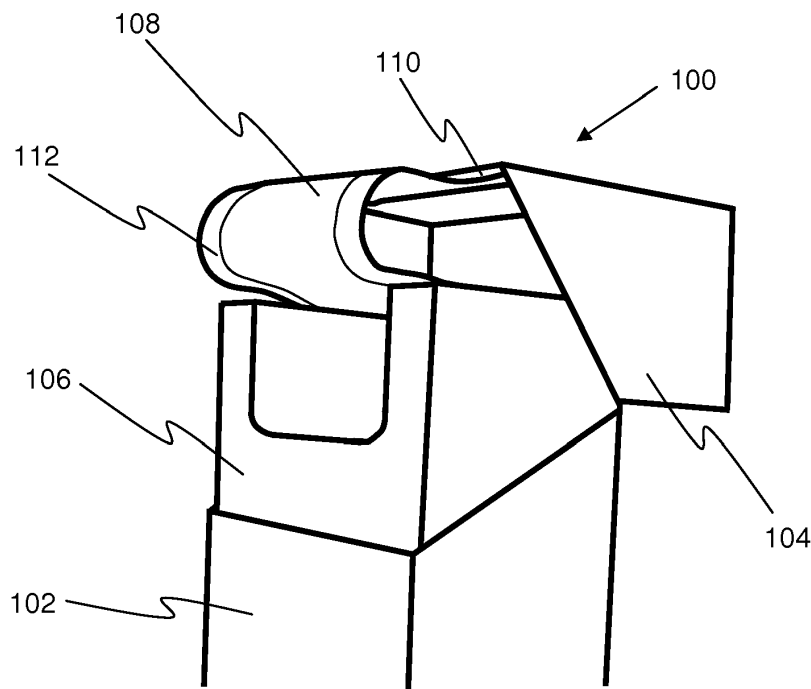


Figure 1

Description

[0001] The present invention relates to a container for consumer goods comprising an adhesive label and a method for producing the container for consumer goods. The container of the present invention finds particular application as a container for elongated consumer good items.

[0002] Elongated consumer goods, including smoking articles such as cigarettes and cigars, are typically packaged in rigid hinge-lid containers. The bundle of smoking articles housed in the box is commonly wrapped in an inner liner, or package, of metallised paper, metal foil or other flexible sheet material. To access the bundle of smoking articles within the inner liner, a consumer should remove a pre-perforated upper portion of the inner liner upon first opening of the hinge-lid container.

[0003] It is known to enclose consumer goods, for example a bundle of smoking articles, in a resealable substantially airtight wrapper. The wrapper including the consumer goods may be inserted in a hinge-lid container. Further, containers are known, for example from WO-A-2008/142540, wherein smoking articles are enclosed in an inner package with an extraction opening removably closed by a cover flap that is releasably affixed to the inner package using non-dry adhesive applied to the underside of the cover flap. Such packages may be received in a hinge-lid container, the cover flap being glued permanently and non-removably to an inner surface of the front wall of the lid. This ensures that opening and closing of the lid simultaneously results in opening and closing of the cover flap, thus revealing and covering the extraction opening.

[0004] For effective bonding of the cover flap to the lid, precise amounts of glue need to be selectively applied to a predetermined portion of the inner surface of the lid. Where too much glue is applied, or where glue is applied in an incorrect position, the lid may exert too great a force on the adhesive label and on the inner package. Where there is too much glue or glue applied in an incorrect position, there may be a structural failure of the container upon opening. In addition, because the provision of a portion of adhesive label that is not bonded to the lid is important for ensuring ease of opening, the erroneous application of glue outside of the predetermined areas may affect the smoothness and reliability of the opening mechanism. By way of example, the lid may get indefinitely stuck to the inner package.

[0005] It would be desirable to provide a container for consumer goods that overcomes the drawbacks identified above. Further, it would be desirable to provide a container for consumer goods whereby a greater force may be applied on opening without the risk of detaching the adhesive label from the lid. At the same time, it would be desirable to provide a method for reliably manufacturing such a container that is reliable, straightforward and cost-effective.

[0006] According to a first aspect of the present inven-

tion, there is provided a container for consumer goods. The container comprises an outer housing comprising a box and a lid hinged to the box along a hinge line extending across a back wall of the container. Further, the container comprises an inner package of consumer goods within the outer housing comprising an access opening through which consumer goods can be removed. In addition, the container comprises an adhesive label covering the access opening of the inner package and extending beyond the periphery of the access opening of the inner package. The adhesive label is at least partially releasably affixed to the inner package by a resealable adhesive provided on a sealing area of the inner surface of the adhesive label extending about at least the lower periphery of the access opening of the inner package. The container comprises a transformable substrate provided on a first area of the inner surface of the lid, or on an affixing area of a surface of the adhesive label, or on both. The affixing area of the adhesive label overlies the transformable substrate and the first area of the inner surface of the lid, and the at least one transformable substrate can be transformed into an adhesive by exposure to energy comprising at least one of heat, electromagnetic radiation, ultrasound or chemical energy.

[0007] According to a second aspect of the present invention, there is further provided a method of forming a container for consumer goods, the container comprising a housing comprising: a box; and a lid hinged to the box along a hinge line extending across a back wall of the container; the container further comprising an inner package of consumer goods within the outer housing comprising an access opening through which consumer goods can be removed; and an adhesive label covering the access opening of the inner package and extending beyond the periphery of the access opening of the inner package; the adhesive label being at least partially releasably affixed to the inner package by a resealable adhesive provided on a sealing area of the inner surface of the adhesive label extending about at least the lower periphery of the access opening of the inner package. According to the method, a transformable substrate is applied on a first area of the inner surface of the lid or on an affixing area of the surface of the adhesive label or on both. The affixing area of the adhesive label is arranged so that it overlies the transformable substrate and the first area of the inner surface of the lid. Further, the transformable substrate is transformed into an adhesive to permanently adhere the adhesive label to the inner surface of the lid.

[0008] It will be appreciated that any features described with reference to one aspect of the present invention are equally applicable to any other aspect of the invention.

[0009] As used herein, the terms "front", "back", "upper", "lower", "top", "bottom" and "side", refer to the relative positions of portions of containers according to the invention and components thereof when the container is in an upright position with the lid of the outer housing in

the closed position and the hinge line at the back of the container. When describing containers according to the present invention, these terms are used irrespective of the orientation of the container being described. The back wall of the container is the wall comprising the hinge line.

[0010] The term "hinge line" refers to a line about which the lid may be pivoted in order to open the container. A hinge line may be, for example, a fold line or a score line in the panel forming the back wall of the container. In some embodiments, the hinge line may coincide with the top edge of the back wall of the container.

[0011] The term "longitudinal" refers to a direction from bottom to top or vice versa. The term "transverse" refers to a direction perpendicular to the longitudinal direction.

[0012] The term "inner surface" is used throughout the specification to refer to the surface of a component of the assembled container that is facing towards the interior of the container, for example towards the consumer goods, when the container is in the closed position. Likewise, the term "outer surface" is used throughout the specification to refer to the surface of a component of the container that is facing towards the exterior of the container. For example, the inner frame comprises an outer surface that is facing the outer housing of the container and an inner surface that is facing the inner package of the container. It should be noted, that the inside or outside surface is not necessarily equivalent to a certain side of a blank used in assembly of the container. Depending on how the blank is folded around the consumer goods, areas that are on the same side of the container can either face towards the inside or the towards the outside of the container.

[0013] The term "releasably affixed" is used throughout the specification to describe a label or a portion of a label that is attached to an underlying substrate by means of a releasable adhesive, such that the label can be removed from, and reattached to, the substrate several times.

[0014] In resealable containers for consumer goods according to the present invention, an inner package with an access opening covered by an adhesive label at least partially releasably affixed to the inner package is housed within a hinged lid box. A portion of the adhesive label is permanently affixed to the lid, so that opening and closing of the lid causes the simultaneous movement of the adhesive label between a closed position, wherein the adhesive label covers the access opening and an open position, where the adhesive label is retracted. In contrast to known containers of this type, a substrate susceptible of being transformed into an adhesive by exposure to energy (for example heat, electromagnetic radiation, ultrasounds or chemical energy) is applied to a surface of the lid or to a surface of the adhesive label or to both. An affixing portion of the adhesive label overlies the transformable substrate and the surface of the lid, so that, during formation of the container, the transformable substrate can be substantially used for permanently bonding, and preferably heat sealing, the adhesive label to the lid.

[0015] Thus, compared with known containers of the same type, in containers according to the present invention the quality of bonding between the adhesive label and the lid can be advantageously improved. This allows a greater force to be exerted when opening the container, without the risk of detaching the adhesive label from the lid or of causing a structural failure of the container.

[0016] Precisely controlling the amount of energy supplied to induce transformation of the substrate into adhesive is easier than controlling the amount of glue dispensed over a given surface. Thus, it is easy to produce a container according to the present invention with a reduced need to control tolerances of dimensions, the amount of glue supplied and the precision of application of glue to predetermined areas. Therefore, manufacture of the container is made comparatively quicker, easier and more cost-effective.

[0017] The risk of contamination of the production line with a sticky adhesive is advantageously reduced or eliminated. In particular, by separating the steps of applying the transformable substrate and transforming the transformable substrate into an adhesive, in containers according to the invention the only transformable substrate that is transformed into an adhesive is the substrate that has been applied to the lid or to the label. Any excess substrate that may be applied accidentally to parts of the manufacturing equipment at the application stage can remain untransformed, since the transformation step can be conducted downstream in the production line. Thus, the present invention significantly reduces production line downtime by reducing or eliminating the need to clean excess sticky adhesive from the manufacturing equipment. In general, manufacture of the container is advantageously made more robust and reliable, because a fixed bonding area is defined and the risk of glue erroneously affixing portions of the container is significantly reduced.

[0018] In containers according to the present invention, a transformable substrate is provided on a first area of the inner surface of the lid or on an affixing area of a surface of the adhesive label or on both.

[0019] The transformable substrate may comprise any suitable material that can be transformed into an adhesive when exposed to energy. Suitable materials that can be used as a transformable substrate in the present invention include, but are not limited to, polyethylene, polypropylene, biaxially oriented polypropylene, cast polypropylene, polyvinylidene chloride, wax (mineral or natural based), polyurethane, polytetrafluoroethylene, acrylics, and combinations thereof. Preferably, the transformable substrate comprises less than about 30 percent by weight of a non-transformable material. More preferably, the transformable substrate comprises less than about 20 percent by weight of a non-transformable material. Even more preferably, the transformable substrate is entirely formed of one such suitable material that can be transformed into an adhesive when exposed to energy.

[0020] The transformable substrate can be applied as a film, an extrusion, a lacquer (water-based, solvent-based or light cured) or as a dispersion. When applied as a liquid, the transformable substrate can be applied using any suitable coating method, such as air knife coating, anilox coating, curtain coating, single or multilayer slide coating, flexo coating, gap coating, gravure coating, immersion (dip) coating, knife-over-roll coating, metering rod (Meyer bar) coating, reverse roll coating, roller coating, rotary screen coating, silk screen coating and slot die (extrusion) coating.

[0021] Preferably, the substrate has a thermal conductivity of at least about 3×10^{-4} calories per second per centimetre per degree C. More preferably, the substrate has a thermal conductivity of at least about 12×10^{-4} calories per second per centimetre per degree C. In addition, or as an alternative, the substrate has preferably a thermal conductivity of less than about 0.3 calories per second per centimetre per degree C. More preferably, the substrate has a thermal conductivity of less than about 0.08 calories per second per centimetre per degree C. This is advantageous where the substrate is transformed into an adhesive by exposure to heat, because a low thermal conductivity reduces the time required for the transforming operation.

[0022] Preferably, the substrate has a heat capacity at 25 degrees Celsius and under standard conditions of at least about 0.2 Joules per gram per Kelvin. More preferably, the substrate has a heat capacity at 25 degrees Celsius and under standard conditions of at least about 0.5 Joules per gram per Kelvin, even more preferably at least about 0.9 Joules per gram per Kelvin. In addition, or as an alternative, the substrate has preferably a heat capacity at 25 degrees Celsius and under standard conditions of less than about 1.6 Joules per gram per Kelvin. This is advantageous where the substrate is transformed into an adhesive by exposure to heat, since a low heat capacity reduces the energy input required for the transforming operation.

[0023] Preferably, the substrate has a melting temperature of at least about 30 degrees Celsius. More preferably, the substrate has a melting temperature of at least about 40 degrees Celsius, even more preferably at least about 50 degrees Celsius. In addition, or as an alternative, the substrate has preferably a melting temperature of less than about 120 degrees Celsius. More preferably, the substrate has a melting temperature of less than about 100 degrees Celsius, even more preferably less than about 80 degrees Celsius. Melting temperatures within these ranges advantageously minimise the amount of heat required in those embodiments where the substrate is applied as a liquid, whilst also ensuring that the substrate remains solid at lower temperatures.

[0024] Suitable methods for activating, that is, transforming the substrate into an adhesive include, but are not limited to, heat sealing, high frequency welding, ultrasonic welding, microwave welding, and other known suitable methods.

[0025] By "heat sealing" reference is made to the process of sealing a thermoplastic material to another similar thermoplastic material or to any other receptive surface using heat, pressure and time. The direct contact method of heat sealing utilises a constantly heated die or sealing bar to apply heat to a specific contact area or path to seal or weld the thermoplastic materials together. A variety of heat sealing means are available to join materials, such as hot bar sealers, impulse heat sealers, etc.

[0026] Certain plastics with chemical dipoles, such as polyvinyl chloride (PVC), polyamides (PA) and acetates can be heated with high frequency electromagnetic waves. "High frequency welding" uses this property to soften the plastics for joining. The heating can be localized, and the process can be continuous.

[0027] In "ultrasonic welding", high frequency (15 kilohertz to 40 kilohertz) low amplitude vibration is used to create heat by way of friction between the materials to be joined. Ultrasonic welding can be used on almost all plastic material. It is advantageous in that it is particularly fast and therefore processing times may be conveniently reduced.

[0028] "Microwave welding" uses energy in the frequency range from 300 megahertz to 300 Gigahertz to produce heating. It is advantageous because weld times may be reduced and non-contact processing is made possible.

[0029] In "radio frequency welding" two pieces of material are placed on a table press that applies pressure to both surface areas. Dies are used to direct the welding process. When the press comes together, high frequency waves (usually 27.12 megahertz) are passed through the small area between the die and the table where the weld takes place. This type of welding may be used in particular with PVC and polyurethane (PU), but it is also possible to weld other polymers such as Nylon, polyethylene terephthalate (PET), polyethylene vinyl acetate (PEVA), ethylene vinyl acetate (EVA) and some acrylonitrile butadiene styrene (ABS) plastics. It is a rapid and very consistent method of welding.

[0030] The adhesive label may be formed from any suitable thermoplastic material. The adhesive label provided for covering the access opening comprises a resealable adhesive, such that the label can be removed from the sealing portion of the package and reattached a number of times. This allows for repeated opening and closing of the package in order to access the consumer goods individually. The resealable adhesive on the adhesive label will preferably provide sufficient adhesion for the label to be reattached at least as many times as there are consumer goods within the package. This enables a consumer to open and reseal the package until the package is empty. Suitable resealable adhesives would be known to the skilled person and a wide variety of adhesives are commercially available from a number of suppliers. The selection of a suitable adhesive may depend upon the material forming the sealing portion of the package to which the adhesive label is sealed and

resealed during use.

[0031] The adhesive label may preferably comprise an adhesive-free surface area, wherein this adhesive-free surface area corresponds in size to the access opening in the inner package. When the lid is in the closed position with the adhesive label sealed to the inner package, this adhesive free surface area covers the access opening in the inner package. This will prevent dust or small particles, for example tobacco shorts or other residue from the consumer goods within the package, from adhering to the adhesive label. This may happen, for example, if the adhesive label comes into contact with the consumer goods within the inner package.

[0032] In an alternative embodiment to having an adhesive-free area corresponding in size to the access opening in the inner package, the access aperture of the inner package may be defined by one or more lines of weakness in the inner package. The one or more lines of weakness define an access portion of the inner package. By providing the inner package with a defined access portion the inner package may be more securely sealed before the first opening of the container. This may increase the storage life of the consumer goods contained within the container. The adhesive label may comprise a further area of the inner surface of the adhesive label permanently affixed to the access portion of the inner package bounded by the one or more lines of weakness. The access portion of the inner package is preferably partially separated from the remainder of the inner package along the one or more lines of weakness on first opening of the lid of the outer housing such that the access portion of the inner package remains attached to the remainder of the inner package during subsequent opening and closing of the lid of the outer housing. The resealable adhesive provided on the first area of the inner surface of the adhesive label may extend about substantially the entire periphery of the access portion of the inner package.

[0033] In some preferred embodiments, the affixing area of the adhesive label is provided as an area of the inner surface of the adhesive label, and a further area of the inner surface of the adhesive label disposed between the sealing area and the affixing area is substantially free of adhesive. Thus, the container may advantageously be closed more easily because the adhesive label does not adhere to itself, or the inner surface of the lid, during opening or closing. In addition, a more securely sealed inner package may be provided because the resealable adhesive portion of the provided adhesive label only adheres to the inner package, and thus may be sealed effectively a plurality of times.

[0034] In other, alternative, preferred embodiments, a further area of the inner surface of the adhesive label is substantially free of adhesive. Further, the affixing area of the adhesive label is provided as an area of the outer surface of the adhesive label and the further area of the inner surface of the adhesive label and the affixing area of the outer surface of the adhesive label at least partially

overly each other. This reduces the forces between the backside of the first area of the outer surface and the resealable adhesive provided on the first area of the inner surface. Further, the container to be closed more easily because the adhesive label does not adhere to itself or to the inner surface of the lid during opening or closing. In addition, a more securely sealed inner package may be provided because the resealable adhesive portion of the provided adhesive label only adheres to the inner package, and thus may be sealed effectively a plurality of times.

[0035] Preferably, the inner package is formed of metal foil or metallised paper. The inner package material may be formed as a laminate of a metallised polyethylene film, and a liner material. The liner material may be a supercalendered glassine paper. In addition, the inner package material may be provided with a print-receptive top coating.

[0036] Preferably, the container further comprises an inner frame within the inner package. In some embodiments, the inner frame is a U-shaped inner frame having a front wall and a pair of opposed side walls. Alternatively, the inner frame may be provided between the container and the inner package. Advantageously, an inner frame with a large surface area increases the structural strength of the container. The increased structural strength provided by the inner frame allows a secure closing of the adhesive label. This is particularly advantageous for subsequent closing operations when the container is no longer full. The term "U-shaped" is used to refer to a shape that comprises three parts, wherein the first and the third part are parallel to each other and extend into the same direction perpendicular to the second part. In practice, a U-shaped inner frame is adapted to surround the bundle of consumer goods, for example of smoking articles, on three sides. Typically, a U-shaped inner frame surrounds the bundle of consumer goods on one major face and on the sides, such that the ends of the consumer goods remain uncovered by the inner frame.

[0037] Where the inner frame is provided between the container and the inner package, the inner frame may comprise a cover layer wherein the surface structure of the cover layer is selected such that substantially no adhesive is transferred from the adhesive label to the cover layer, when the adhesive label is attached to the cover layer of the inner frame. For example, the inner frame may comprise a cover layer of laminated polyethylene terephthalate (PET). The cover layer may be transparent or metallised. Preventing the transfer of adhesive from the label to the inner frame has the advantage that dust or small particles, for example so called "tobacco shorts", will not attach to the inner frame.

[0038] Preferably, the consumer goods may comprise a bundle of smoking articles, such as a bundle of cigarettes. However, containers in accordance with the present invention can also be used with a variety of consumer goods other than smoking articles.

[0039] The outer housing is preferably a rectangular

parallelepiped comprising two wider walls spaced apart by two narrower walls. The outer housing may be formed from any suitable materials including, but not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the outer housing and, where present, the inner frame are formed from one or more folded laminar cardboard blanks and preferably, the cardboard has a weight of from about 100 grams per square metre to about 350 grams per square metre.

[0040] As described above, 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.

[0041] Where the container comprises one or more bevelled edge, preferably the bevelled edge has a width of between about 1 millimetre and about 10 millimetres, preferably between about 2 millimetres and about 6 millimetres. 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.

[0042] Alternatively, the container may have a non-rectangular transversal cross section, for example polygonal such as triangular or hexagonal, semi-oval or semi-circular.

[0043] Containers according to the invention find particular application as packs for elongate smoking articles such as, for example, cigarettes, cigars or cigarillos. It will be appreciated that through appropriate choices of the dimensions thereof, containers according to the invention may be designed for different numbers of conventional size, king size, super-king size, slim or super-slim cigarettes. Alternatively, other consumer goods may be housed inside the container.

[0044] Through an appropriate choice of the dimen-

sions, 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, containers according to the invention may be designed to hold a total of between ten and thirty smoking articles.

[0045] The smoking articles 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 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); or a middle row of six with one outer row of five and one outer row of seven (5-6-7).

[0046] 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 filter-less 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 millimetres and about 180 millimetres), diameter (for example, between about 4 millimetres and about 9 millimetres). 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 millimetres to about 5 millimetres larger than the dimensions of the bundle or bundles of smoking articles housed inside the container.

[0047] The length, width and depth of containers according to the invention may be such that, in the closed lid position, the resultant overall dimensions of the container are similar to the dimensions of a typical disposable hinge-lid pack of twenty cigarettes.

[0048] Preferably, containers according to the invention have a height of between about 60 millimetres and about 150 millimetres, more preferably a height of between about 70 millimetres and about 125 millimetres, wherein the height is measured from the bottom wall to the top wall of the container.

[0049] Preferably, containers according to the inven-

tion have a width of between about 12 millimetres and about 150 millimetres, more preferably a width of between about 70 millimetres and about 125 millimetres, wherein the width is measured from one side wall to the other side wall of the container.

[0050] Preferably, containers according to the invention have a depth of between about 6 millimetres and about 150 millimetres, more preferably a depth of between about 12 millimetres and about 25 millimetres wherein the depth is measured from the front wall to the back wall of the container (comprising the hinge between box and lid).

[0051] 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

[0052] Preferably, the ratio of the width 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 2 to 1 and 3 to 1.

[0053] Preferably, the ratio of the height of the lid back wall to the height of the box back wall of the outer sleeve is between about 0 to 1 (lid located at the top edge of the container) to about 1 to 1, more preferably, between about 1 to 5 and about 1 to 10, most preferably, between about 1 to 6 to about 1 to 8.

[0054] Preferably, the ratio of the height of the lid front wall of the outer sleeve to the height of the box front wall of the outer sleeve is between about 1 to 0 (lid covering the entire front wall) to about 1 to 10, more preferably, between about 1 to 1 and about 1 to 5, most preferably, between about 1 to 2 and about 1 to 3.

[0055] Where the container comprises smoking articles, the container may further comprise waste-compartments (for example for ash or butts) or 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.

[0056] 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.

[0057] 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.

[0058] The invention will be further described, by way of example only, with reference to the accompanying drawings in which:

5 Figure 1 shows a schematic perspective view of a container in accordance with the present invention; Figure 2 shows a side view of the container shown in Figure 1 with the lid in the open position; Figure 3 shows a side view of the container shown in Figure 1 with the lid in the closed position; and Figure 4 shows a schematic plane view of a blank for forming a container in accordance with the present invention.

10 **[0059]** The hinge lid container 100 shown in Figure 1 is a rectangular parallelepiped and comprises a lower box 102 and an upper lid 104 that is hinged to the box 102 along a hinge line extending substantially horizontally along the back wall of the container 100. Figure 1 shows the container with the hinge lid 104 in an open position. A bundle of cigarettes (not shown) is housed in the box 102 of the container 100. The bundle is wrapped in an inner package 106, described in more detail below. The overall size and construction of the box 102 and lid 104 of container 100 are substantially the same as that of a standard hinge lid cigarette pack.

20 **[0060]** The box 102 has a box front wall, a box left side wall, a box right side wall, a box back wall, and a box bottom wall. The upper side of the box 102 is open, to provide an upper opening through which the cigarettes can be removed. When the container in the upright position is open, the cigarettes contained in the box 102 may be removed from the upper end of the container 100.

30 **[0061]** The lid 104 has a lid front wall, a lid left side wall, a lid right side wall, a lid back wall and a lid top wall. When the container 100 is closed, the free edges of the walls of the lid 104 abut the free edges of the walls of the box 102 along a line of abutment. In the closed position, the walls of the lid 104 therefore form extensions of the corresponding walls of the box 102 to define the walls of the container 100.

40 **[0062]** An inner frame (not shown) is mounted within the inner package 106 of the container 100. The inner frame comprises an inner frame front wall, an inner frame left side wall and an inner frame right side wall which are connected to the inner surface of the inner package front wall, inner package left side wall and inner package right side wall, respectively. The inner frame front wall includes a rectangular cut out at the top free edge, in order to facilitate removal of the cigarettes from the box 102. The rectangular cut out substantially corresponds to a front wall portion of the access opening in the inner package. The walls of the inner frame extend above the upper edges of the box 102.

50 **[0063]** Prior to the first opening, the container 100 is wrapped in an outer wrapper (not shown) formed of a transparent film, in the conventional manner.

[0064] The inner package 106 includes a cut-out

through which the cigarettes can be removed. When the inner package of cigarettes is in place within the box 102 the cut out is positioned at the open, upper end of the box 102.

[0065] A rectangular, self-adhesive label 108 is attached to the outer surface of the inner package 106 so that the label 108 covers the cut-out defining the access opening in the inner package 106. In more detail, the self-adhesive label 108 is releasably affixed to the inner package 106 by a resealable adhesive provided on a sealing area 112 of the inner surface of the adhesive label extending about at least the lower periphery of the upper opening of the inner package 106. When the lid is in the closed position the resealable adhesive area 112 forms a seal between the adhesive label 108 and the inner package 106. In addition, the label 108 is sealed to the inner package at the upper, back edge of the inner package using a strip of permanent adhesive. This advantageously provides a hinge line about which the adhesive label can be pivoted in order to open and close the inner package.

[0066] The hinge lid container 100 comprises a transformable substrate 200 provided on a first area 105 of the inner surface of the front wall of the lid 104. The transformable substrate 200 can be transformed into an adhesive by exposure to heat. An affixing area 101 of self-adhesive label 108 is arranged to overlie the transformable substrate 200 and the first area 105 of the inner surface of the lid 104, so that, upon transformation of the substrate, the free end 110 of the label 108 becomes permanently affixed to the lid 104.

[0067] In order to access the cigarettes within the inner package, the hinge lid 104 is moved from the closed position to the open position shown in Figure 1. As the lid 104 is moved from the closed position, the label 108 is peeled from the inner package 106 since the free end 110 of the label 108 is permanently affixed to the lid, thereby uncovering the access opening in the inner package through which one or more cigarettes can be removed.

[0068] Figure 2 shows a side view of the container 100 with the lid 104 in the open position. As described above, the label 108 is permanently affixed to the inner surface of the lid 104 substantially adjacent the lower edge of the lid. The portion 202 located adjacent the permanent adhesive portion 200 is substantially free of adhesive. The adhesive-free portion is provided to prevent the adhesive label from adhering to the inner surface of the lid in the region of the lower edge of the lid. By preventing the adhesive label from adhering to the lid the container may be opened, and closed, more easily.

[0069] Figure 3 shows a side view of the container 100 with the lid 104 in the closed position. As can be seen, the portion 200 of the adhesive label permanently affixed to the inner surface of the lid is folded by substantially 180 degrees away from the inner package. The adhesive label 108 is shown affixed to the inner package 106.

[0070] The box portion 102 and the lid portion 104 are

formed together from the single laminar blank 300 illustrated in Figure 4. In Figure 4, solid lines indicate cut lines and dashed lines indicate fold lines. The blank 300 comprises a box blank portion 302 for forming the box portion 102 of the container 100, and a lid blank portion 304 for forming the lid portion 104 of the container 100. The box blank portion 302 depends from the lid blank portion 304 along the hinge line.

[0071] The lid blank portion 304 comprises a front wall panel, a rear wall panel and a top wall panel. Two side wall panels extend from the front wall panel, two side wall panels extend from the rear wall panel, and lid dust flaps extend from the side wall panels. When the lid portion 104 is assembled from the lid blank portion, the front wall panel forms the lid front wall, the rear wall panel forms the lid rear wall, the side wall panels overlap to form right and left lid side walls, and lid dust flaps overlap the top wall panel to form the lid top wall. The transformable substrate 200 is applied on a first area 105 of the inner surface of the front wall panel of the lid blank portion 304. The label 108 is attached to the lid only after the box portion 102 and the lid portion 104 are formed from the blank 300.

Claims

1. A container for consumer goods comprising:

an outer housing comprising:

a box; and
a lid hinged to the box along a hinge line extending across a back wall of the container;

an inner package of consumer goods within the outer housing comprising an access opening through which consumer goods can be removed; and

an adhesive label covering the access opening of the inner package and extending beyond the periphery of the access opening of the inner package, the adhesive label being at least partially releasably affixed to the inner package by a resealable adhesive provided on a sealing area of the inner surface of the adhesive label extending about at least the lower periphery of the access opening of the inner package;

wherein the container comprises a transformable substrate provided on a first area of the inner surface of the lid or on an affixing area of a surface of the adhesive label or on both;

wherein the affixing area of the adhesive label overlies the transformable substrate and the first area of the inner surface of the lid, and the at least one transformable substrate can be trans-

- formed into an adhesive by exposure to energy comprising at least one of heat, electromagnetic radiation, ultrasound and chemical energy.
2. A container according to claim 1, wherein the transformable substrate has a thermal conductivity of at least about 3×10^{-4} calories per second per centimetre per degree C. 5
 3. A container according to claim 1 or 2, wherein the transformable substrate has a thermal conductivity of less than about 0.3 calories per second per centimetre per degree C. 10
 4. A container according to any one of the preceding claims, wherein the transformable substrate has a heat capacity at 25 degrees Celsius and under standard conditions of at least about 0.2 Joules per gram per Kelvin. 15
 5. A container according to any one of the preceding claims, wherein the transformable substrate has a heat capacity at 25 degrees Celsius and under standard conditions of less than about 1.6 Joules per gram per Kelvin. 20 25
 6. A container according to any one of the preceding claims, wherein the transformable substrate has a melting temperature of at least about 30 degrees Celsius. 30
 7. A container according to any one of the preceding claims, wherein the transformable substrate has a melting temperature of less than about 120 degrees Celsius. 35
 8. A container according to any one of the preceding claims, wherein the affixing area of the adhesive label is provided as an area of the inner surface of the adhesive label, and wherein a further area of the inner surface of the adhesive label disposed between the sealing area and the affixing area is substantially free of adhesive. 40
 9. A container according to any one of the preceding claims, wherein a further area of the inner surface of the adhesive label is substantially free of adhesive; wherein the affixing area of the adhesive label is provided as an area of the outer surface of the adhesive label; 45 50
and wherein the further area of the inner surface of the adhesive label and the affixing area of the outer surface of the adhesive label at least partially overlap each other. 55
 10. A container according to any one of the preceding claims, wherein the access opening of the inner package is defined by one or more lines of weakness in the inner package.
 11. A container according to claim 10, wherein the adhesive label comprises a further area of the inner surface of the adhesive label permanently affixed to the portion of the inner package bounded by the one or more lines of weakness.
 12. A container according to any one of the preceding claims, wherein the adhesive label is partially permanently affixed to the inner package.
 13. A container according to any one of the preceding claims, further comprising an inner frame within the inner package.
 14. A container according to any one of the preceding claim, wherein the consumer goods are smoking articles.
 15. A method of forming a container for consumer goods, the container comprising:
an outer housing comprising:
a box; and
a lid hinged to the box along a hinge line extending across a back wall of the container;
an inner package of consumer goods within the outer housing comprising an access opening through which consumer goods can be removed; and
an adhesive label covering the access opening of the inner package and extending beyond the periphery of the access opening of the inner package,
the adhesive label being at least partially releasably affixed to the inner package by a resealable adhesive provided on a sealing area of the inner surface of the adhesive label extending about at least the lower periphery of the access opening of the inner package,
the method comprising:
applying a transformable substrate on a first area of the inner surface of the lid or on an affixing area of the surface of the adhesive label or on both;
arranging the affixing area of the adhesive label so that it overlies the transformable substrate and the first area of the inner surface of the lid; and
transforming the transformable substrate into an adhesive to permanently adhere the adhesive label to the inner surface of the lid.

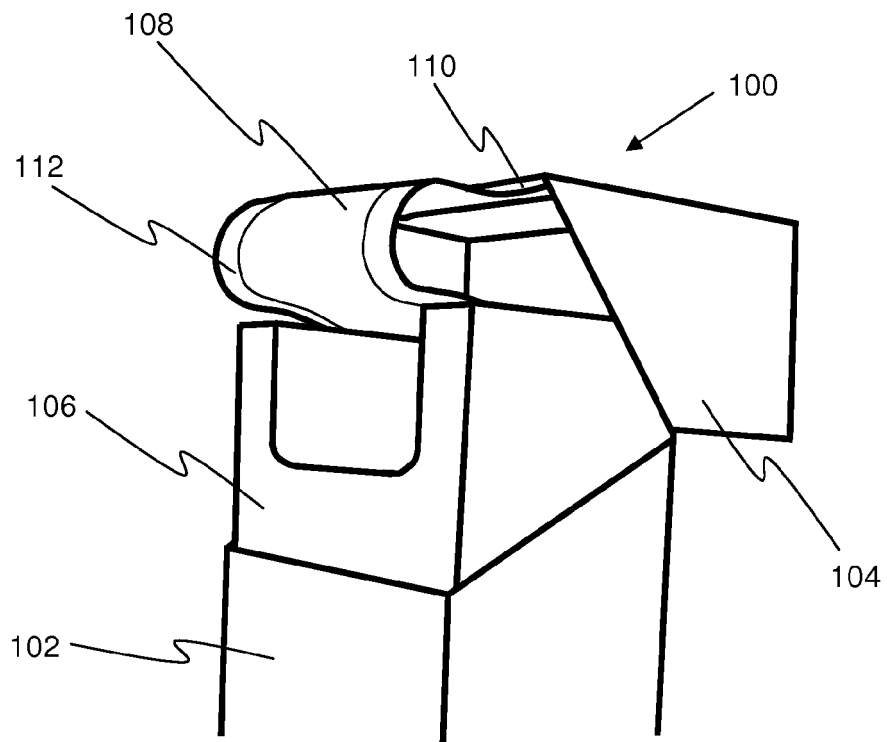


Figure 1

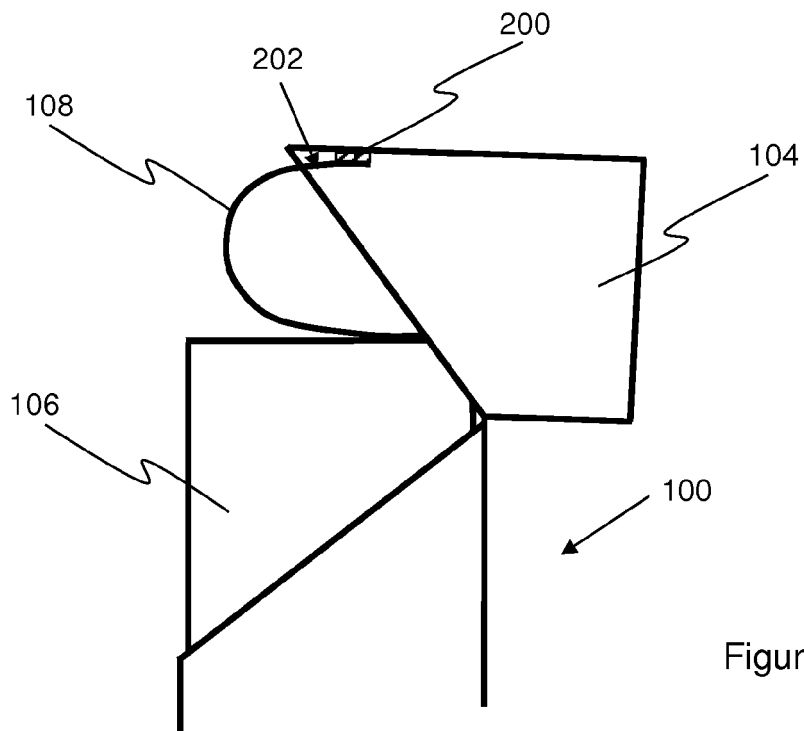


Figure 2

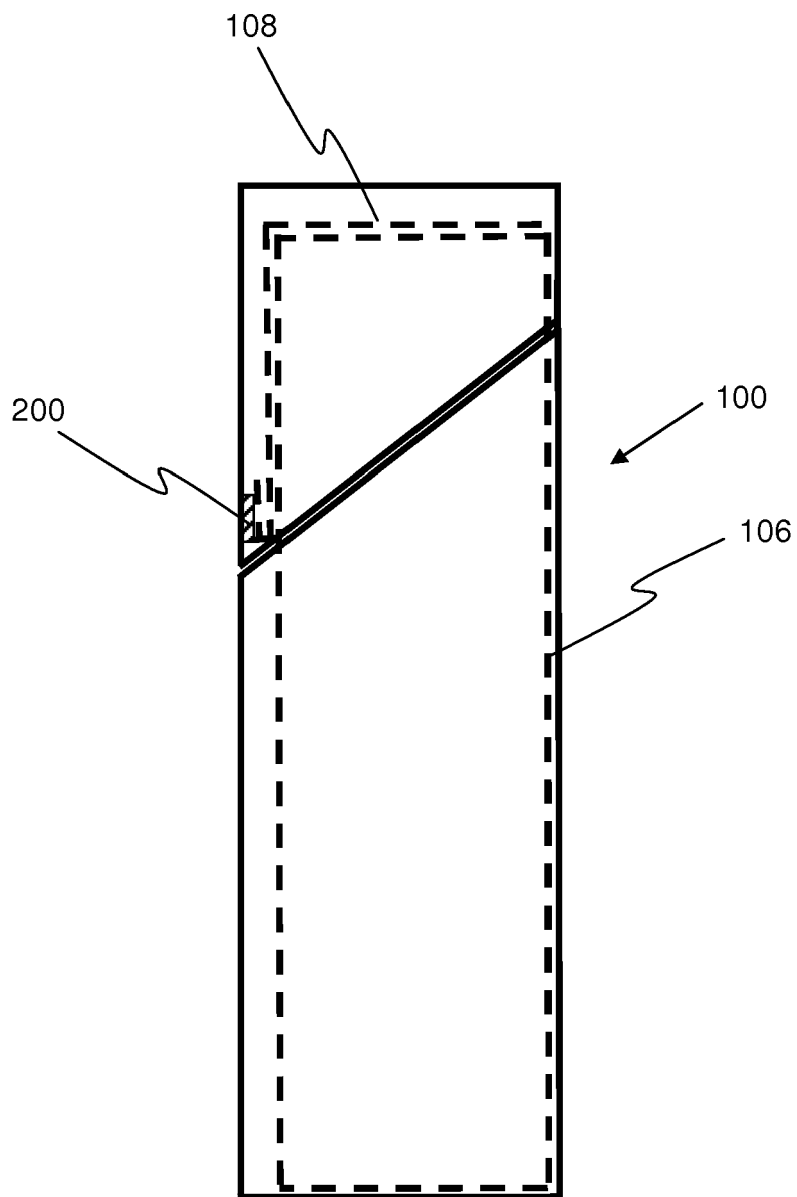


Figure 3

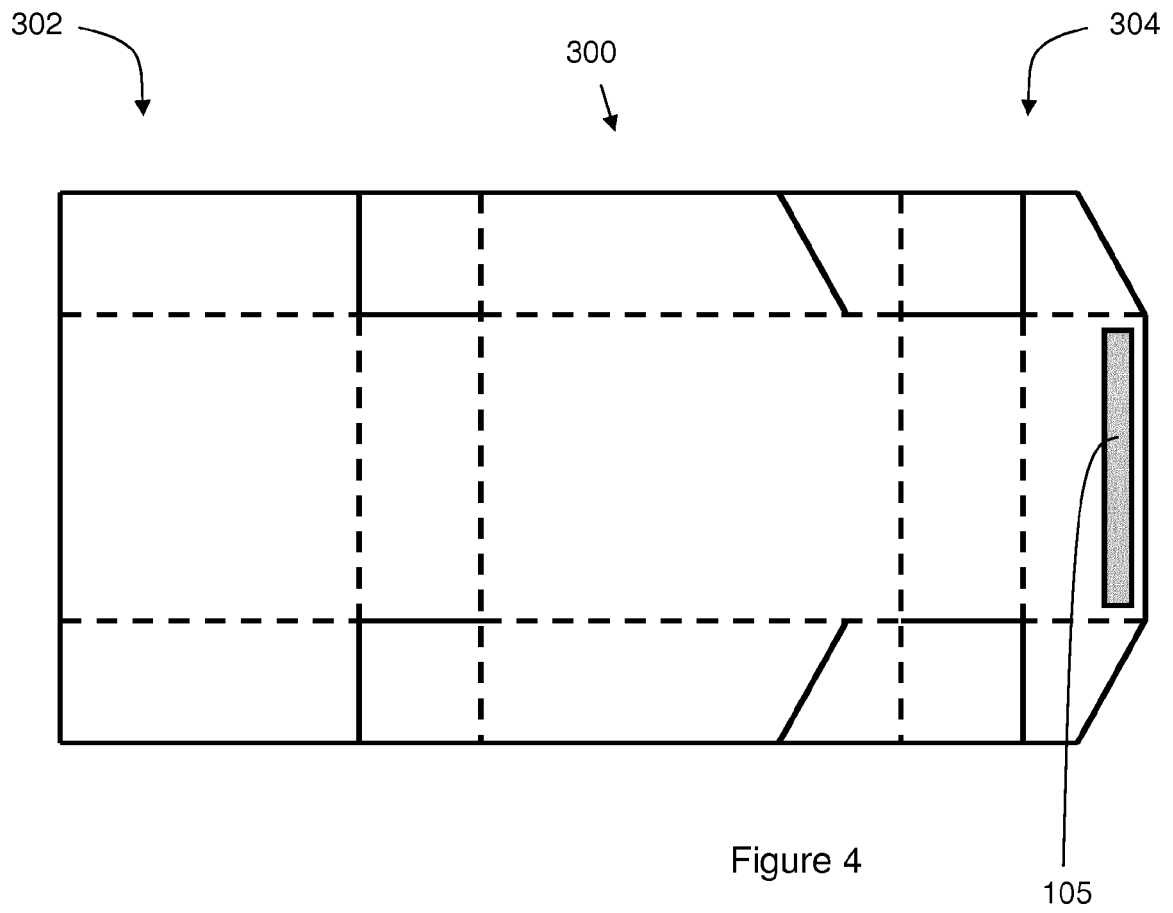


Figure 4



EUROPEAN SEARCH REPORT

 Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	WO 2008/142540 A1 (GD SPA [IT]; MARCHETTI ROBERTO [IT]; NEGRINI STEFANO [IT]) 27 November 2008 (2008-11-27) * page 7; figures 1-9 *	1,15	INV. B65D75/58 B65D85/10 B65D5/60
A	WO 2013/120913 A1 (PHILIP MORRIS PROD [CH]) 22 August 2013 (2013-08-22) * page 11, lines 15-20; figure 1 *	1,15	
A	GB 2 451 180 A (GD SPA [IT]) 21 January 2009 (2009-01-21) * figures 10,15 *	1,15	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 March 2015	Examiner Jervelund, Niels
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 14 18 8840

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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25-03-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2008142540 A1	27-11-2008	AU 2008252539 A1	27-11-2008
		EP 2155568 A1	24-02-2010
		KR 20100033479 A	30-03-2010
		PL 2155568 T3	30-11-2012
		RU 2009147454 A	27-06-2011
		US 2010252462 A1	07-10-2010
		WO 2008142540 A1	27-11-2008
		ZA 200908772 A	25-08-2010

WO 2013120913 A1	22-08-2013	AR 089985 A1	01-10-2014
		CN 104114465 A	22-10-2014
		EP 2814765 A1	24-12-2014
		KR 20140124757 A	27-10-2014
		US 2015021219 A1	22-01-2015
		WO 2013120913 A1	22-08-2013

GB 2451180 A	21-01-2009	CN 101628651 A	20-01-2010
		DE 102008033937 A1	22-01-2009
		GB 2451180 A	21-01-2009
		JP 5596279 B2	24-09-2014
		JP 2009046196 A	05-03-2009
		SG 149770 A1	27-02-2009

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2008142540 A [0003]