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(54) Title: WIPES CONTAINER MADE OF SUSTAINABLE MATERIALS

(57) Abstract: A wipes product includes a wipes container filled with at least one wipe substrate. The wipes container is formed at least partially from a first polymer and the first polymer is synthetic and at least partially derived from a renewable resource via a first intermediate monomeric compound. The wipes container includes a lid and a base such that at least one of the lid and the base comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B. Methods of forming a wipes product are also provided.

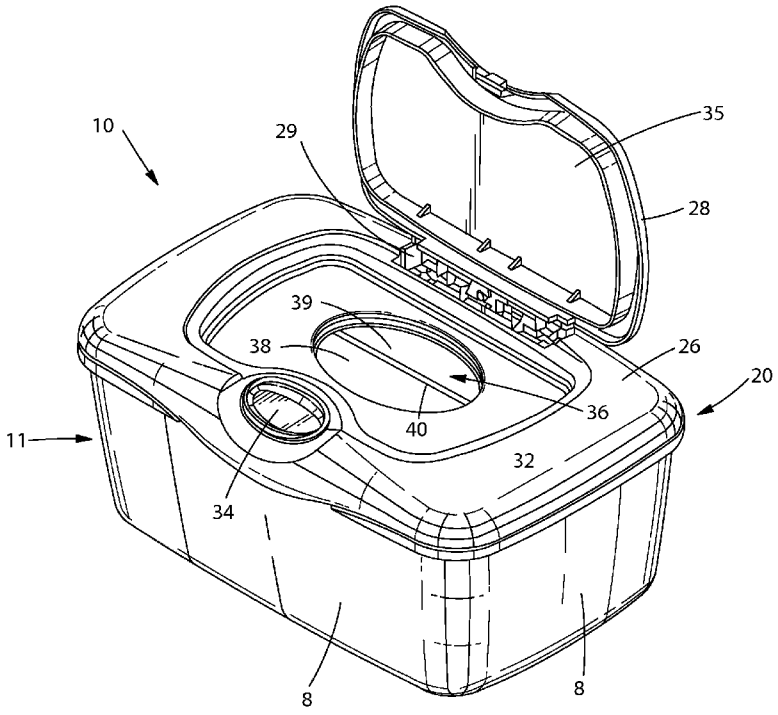


Fig. 2

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WIPES CONTAINER MADE OF SUSTAINABLE MATERIALS

FIELD OF THE INVENTION

The present disclosure generally relates to wipes products that dispense cleaning wipes and, more particularly, to a wipes product which comprises synthetic polymeric materials derived from renewable resources, where the materials have specific performance characteristics making them particularly useful in the wipes product.

BACKGROUND OF THE INVENTION

Wipes products can include cleaning wipes generally sold in plastic tubs, tubes or other containers, and a consumer typically extracts a wipe for use by pulling the wipe through a hole or slot in the container. In certain embodiments, the hole or slot is covered by a lid. Commonly, the plastic container or tub is sold pre-loaded with a supply of wipes. Once a consumer depletes the original supply of wipes, the consumer may discard the empty container and purchase a new pre-loaded container or tub. Alternatively the consumer may refill the container or tub with a supply of fresh wipes and re-use the container or tub to dispense the wipes.

Because of widely differing consumer tastes, manufacturers tend to make a wide variety of cleaning wipes. For example, some consumers desire scented wipes, while other consumers demand wipes that are free of all dyes, scents, or perfumes. Still other consumers desire wipes having lotions such as aloe vera, lanolin, or other materials, often with or without the addition of alcohol. Still other consumers want flushable wipes, biodegradable wipes, gentle wipes, or wipes free of any lotion, alcohol, or other additives.

The development of wipes products is the subject of substantial commercial interest. There is a great deal of art relating to the design of wipes products, the processes for manufacturing such wipes products, and the materials used in their construction. In particular, a great deal of effort has been spent in the development of materials exhibiting optimal performance characteristics for use in wipes products.

Some of the materials used in current commercial wipes products, especially the container, are derived from non-renewable resources, especially petroleum. Typically, the components of the wipes product are made from polyolefins such as polyethylene and polypropylene. These polymers are derived from olefinic monomers such as ethylene and propylene which are obtained directly from petroleum via cracking and refining processes.

Thus, the price and availability of the petroleum feedstock ultimately has a significant impact on the price of wipes products which utilize materials derived from petroleum. As the worldwide price of petroleum escalates, so does the price of wipes products.

Furthermore, some consumers display an aversion to purchasing products that are derived from petrochemicals. In some instances, consumers are hesitant to purchase products made from limited non-renewable resources such as petroleum and coal. Other consumers may have adverse perceptions about products derived from petrochemicals being "unnatural" or less environmentally friendly.

Accordingly, it would be desirable to provide a wipes product which comprises a polymer at least partially derived from renewable resources, where the polymer has specific performance characteristics making the polymer particularly useful in the wipes product.

SUMMARY OF THE INVENTION

In accordance with one embodiment, a wipes product comprises a container and at least one wipe substrate. The container comprises a lid and a base. The base defines an interior space. The at least one wipe substrate is at least partially disposed within the interior space. The container is formed at least partially from a first polymer, the first polymer is synthetic and is at least partially derived from a renewable resource via a first primary intermediate compound. The first primary intermediate compound is monomeric. At least one of the lid and the base has a bio-based content of about 10% to about 100% using ASTM D6866-10, method B.

In accordance with another embodiment, a container for a wipes product is formed at least partially from a first polymer. The first polymer is synthetic and at least partially derived from a renewable resource. The container comprises a base and a lid. The base defines an interior space. The interior space has a major opening. The base comprises a bottom panel, a top ridge and at least one side panel. The lid comprises a major portion and a minor portion. The minor portion is hingedly connected to the major portion. The major portion is configured to be securable to the base to selectively facilitate closure of the major opening. The major portion defines a minor opening. The minor opening communicates with the interior space. The minor portion is selectively moveable between a first position and second position. The minor portion closes the minor opening when in the first position. The minor portion permits access to the interior space through the minor opening when in the second position. At least one of the base and the lid has a bio-based content of about 10% to about 100% using ASTM D6866-10, method B. At least one of the base and the lid has a density of from about 0.85 g/cc to about 0.99 g/cc.

In accordance with yet another embodiment, the wipes product has a Drop Test Failure Rate of zero when the wipes product is dropped 10 times or less. The wipes product comprises a container and at least one wipe substrate. The container comprises a lid and a base. The base defines an interior space. The at least one wipe substrate is at least partially disposed within the interior space. The container is formed at least partially from a first polymer, the first polymer is synthetic and is at least partially derived from a renewable resource. At least one of the lid and the base exhibits a bio-based content of about 10% to about 100% using ASTM D6866-10, method B.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a wipes container having a lid with a major portion and a minor portion;

FIG. 2 is a perspective view of the wipes container of FIG. 1 where the minor portion of the lid is in a open position exposing the orifice of the wipes container;

FIG. 3 is a perspective view of the wipes container of FIG. 1 where the major portion and minor portion of the lid are in an open position;

FIG. 4 is a front view of the wipes container of FIG. 1, wherein the wipes container is closed and contains wipe substrates shown in dashed lines; and

FIG. 5 is a partially enlarged bottom view of an orifice illustrated in FIGS. 2-4.

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter that is regarded as the present invention, it is believed that the invention will be more fully understood from the following description taken in conjunction with the accompanying drawings. Some of the figures may have been simplified by the omission of selected elements for the purpose of more clearly showing other elements. Such omissions of elements in some figures are not necessarily indicative of the presence or absence of particular elements in any of the exemplary embodiments, except as may be explicitly delineated in the corresponding written description. None of the drawings are necessarily to scale.

DETAILED DESCRIPTION OF THE INVENTION

I. Definitions

As used herein, the following terms shall have the meaning specified thereafter:

"Bio-based content" refers to the amount of carbon from a renewable resource in a material as a percent of the mass of the total organic carbon in the material, as determined by

ASTM D6866-10, method B. Note that any carbon from inorganic sources such as calcium carbonate is not included in determining the bio-based content of the material.

"Disposed" refers to an element being located in a particular place or position.

"Film" refers to a sheet-like material wherein the length and width of the material far exceed the thickness of the material. Typically, films may have a thickness of about 0.5 mm or less.

"Petrochemical" refers to an organic compound derived from petroleum, natural gas, or coal.

"Petroleum" refers to crude oil and its components of paraffinic, cycloparaffinic, and aromatic hydrocarbons. Crude oil may be obtained from tar sands, bitumen fields, and oil shale.

"Renewable resource" refers to a natural resource that can be replenished within a 100 year time frame. The resource may be replenished naturally, or via agricultural techniques. Renewable resources include plants, animals, fish, bacteria, fungi, and forestry products. They may be naturally occurring, hybrids, or genetically engineered organisms. Natural resources such as crude oil, coal, and peat which take longer than 100 years to form are not considered to be renewable resources.

"Agricultural product" refers to a renewable resource resulting from the cultivation of land (e.g. a crop) or the husbandry of animals (including fish).

"Monomeric compound" refers to an intermediate compound that may be polymerized to yield a polymer.

"Polymer" refers to a macromolecule comprising repeat units where the macromolecule has a molecular weight of at least 1000 Daltons. The polymer may be a homopolymer, copolymer, terpoymer etc. The polymer may be produced via fee-radical, condensation, anionic, cationic, Ziegler-Natta, metallocene, or ring-opening mechanisms. The polymer may be linear, branched and/or crosslinked.

"Synthetic polymer" refers to a polymer which is produced from at least one monomer by a chemical process. A synthetic polymer is not produced directly by a living organism.

"Polyethylene" and "polypropylene" refer to polymers prepared from ethylene and propylene, respectively. The polymer may be a homopolymer, or may contain up to about 10 mol % of repeat units from a co-monomer.

"Communication" refers to a medium or means by which information, teachings, or messages are transmitted.

"Related environmental message" refers to a message that conveys the benefits or advantages of the wipes product comprising a polymer derived from a renewable resource. Such benefits include being more environmentally friendly, having reduced petroleum dependence, being derived from renewable resources, and the like.

"Wipe substrate" as used herein, refers to a cleaning article that comprises a substrate of one or more layers of nonwoven web.

The terms "nonwoven web" or "web" are used interchangeably herein, and refer to a layer of individual fibers or threads that are interlaid, but not in an identifiable manner as in a knitted or woven web. Nonwoven webs may be made via processes known in the art, including but not limited to: carding; airlaying; and wetlaying. Processes comprising filament spinning from resin and integrated webforming include, but are not limited to: spunbonding; meltblowing; coforming; and forming spunbond-meltblown-spunbond composites. Fiber bonding processes of use may include, but are not limited to: spunlacing (i.e., hydroentanglement); cold calendering; hot calendering; air thru bonding; chemical bonding; needle punching; and combinations thereof.

II. Polymers Derived from Renewable Resources

A number of renewable resources contain polymers that are suitable for use in a wipes product (i.e., the polymer is obtained from the renewable resource without intermediates). Suitable extraction and/or purification steps may be necessary, but no intermediate compound is required. Such polymers derived directly from renewable resources include cellulose (e.g. pulp fibers), starch, chitin, polypeptides, poly(lactic acid), polyhydroxyalkanoates, and the like. These polymers may be subsequently chemically modified to improve end use characteristics (e.g., conversion of cellulose to yield carboxycellulose or conversion of chitin to yield chitosan). However, in such cases, the resulting polymer is a structural analog of the starting polymer. Polymers derived directly from renewable resources (i.e., with no intermediate compounds) and their derivatives are known and these materials are not within the scope of the present invention, in that they are not considered to be at least partially derived from a renewable resource via an intermediate compound.

Synthetic polymers of the present disclosure can be derived from a renewable resource via an indirect route involving one or more intermediate compounds. Suitable intermediate compounds derived from renewable resources include sugars. Suitable sugars include monosaccharides, disaccharides, trisaccharides, and oligosaccharides. Sugars such as sucrose, glucose, fructose, maltose may be readily produced from renewable resources such as sugar cane

and sugar beets. Sugars may also be derived (e.g., via enzymatic cleavage) from other agricultural products such as starch or cellulose. For example, glucose may be prepared on a commercial scale by enzymatic hydrolysis of corn starch. While corn is a renewable resource in North America, other common agricultural crops may be used as the base starch for conversion into glucose. Wheat, buckwheat, arracaha, potato, barley, kudzu, cassava, sorghum, sweet potato, yam, arrowroot, sago, and other like starchy fruit, seeds, or tubers are may also be used in the preparation of glucose.

Other suitable intermediate compounds derived from renewable resources include monofunctional alcohols such as methanol or ethanol and polyfunctional alcohols such as glycerol. Ethanol may be derived from many of the same renewable resources as glucose. For example, cornstarch may be enzymatically hydrolyzed to yield glucose and/or other sugars. The resultant sugars can be converted into ethanol by fermentation. As with glucose production, corn is an ideal renewable resource in North America; however, other crops may be substituted. Methanol may be produced from fermentation of biomass. Glycerol is commonly derived via hydrolysis of triglycerides present in natural fats or oils, which may be obtained from renewable resources such as animals or plants.

Other intermediate compounds derived from renewable resources include organic acids (e.g., citric acid, lactic acid, alginic acid, amino acids etc.), aldehydes (e.g., acetaldehyde), and esters (e.g., cetyl palmitate, methyl stearate, methyl oleate, etc.).

Additional intermediate compounds such as methane and carbon monoxide may also be derived from renewable resources by fermentation and/or oxidation processes.

Intermediate compounds derived from renewable resources may be converted into polymers (e.g., glycerol to polyglycerol) or they may be converted into other intermediate compounds in a reaction pathway which ultimately leads to a polymer useful in a wipes product. An intermediate compound may be capable of producing more than one secondary intermediate compound. Similarly, a specific intermediate compound may be derived from a number of different precursors, depending upon the reaction pathways utilized.

Particularly desirable intermediates include olefins. Olefins such as ethylene and propylene may also be derived from renewable resources. For example, methanol derived from fermentation of biomass may be converted to ethylene and or propylene, which are both suitable monomeric compounds, as described in U.S. Patent Nos. 4,296,266 and 4,083,889. Ethanol derived from fermentation of a renewable resource may be converted into the monomeric compound ethylene via dehydration as described in U.S. Patent No. 4,423,270. Similarly,

propanol or isopropanol derived from a renewable resource can be dehydrated to yield the monomeric compound of propylene as exemplified in U.S. Patent No. 5,475,183. Propanol is a major constituent of fusel oil, a by-product formed from certain amino acids when potatoes or grains are fermented to produce ethanol.

Charcoal derived from biomass can be used to create syngas (i.e., $CO + H_2$) from which hydrocarbons such as ethane and propane can be prepared (Fischer-Tropsch Process). Ethane and propane can be dehydrogenated to yield the monomeric compounds of ethylene and propylene.

Other sources of materials to form polymers derived from renewable resources include post-consumer recycled materials. Sources of synthetic post-consumer recycled materials can include plastic bottles, e.g., soda bottles, plastic films, plastic packaging materials, plastic bags and other similar materials which contain synthetic materials which can be recovered.

III. Exemplary Synthetic Polymers

Olefins derived from renewable resources may be polymerized to yield polyolefins. Ethylene and propylene derived from renewable resources may be polymerized under the appropriate conditions to prepare polyethylene and/or polypropylene having desired characteristics for use in a wipes product. The polyethylene and/or polypropylene may be high density, medium density, low density, or linear-low density. Polyethylene and/or polypropylene may be produced via free-radical polymerization techniques, or by using Ziegler-Natta catalysis or Metallocene catalysts. Examples of such bio-sourced polypropylenes are described in U.S. Publication Nos. 2010/0069691, 2010/0069589, 2009/0326293, and 2008/0312485; PCT Application Nos. WO2010063947 and WO2009098267. Other olefins that can be derived from renewable resources include butadiene and isoprene. Examples of such olefins are described in U.S. Publication Nos. 2010/0216958 and 2010/0036173.

Such polyolefins being derived from renewable resources can also be reacted to form various copolymers, including for example impact-modified copolymers or impact copolymers. In a particular embodiment, the impact-modified copolymer can include impact-modified polypropylene (a copolymer of propylene and ethylene) and impact-modified polypropylene (a blend of isotactic polypropylene and polyisobutylene). Such copolymers and methods of forming same are contemplated and described for example in U.S. Patent Nos. 7,488,789; 7,368,498; 7,259,211; 7,217,766; 7,109,269; 7,105,603; and 6,492,465.

In addition, the polyolefin derived from a renewable resource may be processed according to methods known in the art into a form suitable for the end use of the polymer. The polyolefin may comprise mixtures or blends with other polymers such as polyolefins derived from petrochemicals. Depending on the end use and form, the polyolefin may comprise other compounds such as inorganic compounds, fillers, pigments, dyes, antioxidants, UV-stabilizers, binders, surfactants, wetting agents, and the like.

It should be recognized that any of the aforementioned synthetic polymers (e.g., copolymers) may be formed by using a combination of monomers derived from renewable resources and monomers derived from non-renewable (e.g., petroleum) resources. For example, the copolymer can comprise propylene repeat units derived from a renewable resource and isobutylene repeat units derived from a petroleum source.

Certain synthetic polymers described herein derived at least in part from a renewable resource exhibit desirable characteristics. In one embodiment, these synthetic polymers can have a Melt Flow Index of about 12 g/10 min to about 100 g/10 min; and in another embodiment the synthetic polymers can have a Melt Flow Index of about 40 g/10 min to about 60 g/10 min. The Melt Flow Index can be determined applying the methodology set forth in ASTM D1238-10.

In one embodiment the density of at least a portion of the container (e.g., lid and/or base) comprising these synthetic polymers can be from about 0.85 g/cc to about 0.99 g/cc; in a certain embodiment the density can be from about 0.89 g/cc to about 0.96 g/cc; and in a certain embodiment the density can be from about 0.92 g/cc to about 0.95 g/cc. It will be appreciated that these portions of the container comprising the synthetic polymers can include other components, such as fillers, pigments etc., which could cause the density to be greater or less than the ranges noted herein. The density of the containers comprising the synthetic polymers can be determined applying the methodology set forth in ASTM D792-08. For example, a 20 mm × 20 mm sample for density determination is cut from a portion of the container using a suitable sharp blade. The density of the sample is determined according to ASTM D792-08 regardless of the thickness of the sample.

IV. Wipes Products Comprising the Synthetic Polymer Derived from Renewable Resources

Selected embodiments are hereinafter described in detail in connection with the views and examples of FIGS. 1-5, wherein like numbers indicate the same or corresponding elements throughout the views. FIGS. 1-4 show perspective views and a front view, respectively, of a wipes container 10, for storing and dispensing wipe substrates 24 (as represented by dashed lines

in FIG. 4). The wipes container 10 may include a base 11 having a bottom panel 12, at least one side panel(s) 8 and a top ridge 17. The at least one side panel(s) 8 can include a front panel 14, a rear panel 16, a right panel 18 and a left panel 19. The base 11 can provide a relatively stable means of support, for example, when the container 10 is placed on a surface. In certain embodiments, the bottom panel 12 of the base 11 may be substantially flat and have a generally rectangular shape. In certain embodiments, the base 11 may include features such as commonly known feet or areas of increased friction. It is to be appreciated, however, that the base 11, the front panel 14, rear panel 16, right panel 18 and left panel 19, or even the entire container 10 may take any suitable shape desired or include any suitable feature known in the art. Furthermore, it will be appreciated that the base 11 can be formed as a unitary structure or comprise multiple pieces constructed to cooperatively fit together to form the base. For example, in one embodiment, a bottom panel could be a separate piece that attaches to a front panel, rear panel and side panels to form a base. As more clearly shown in FIG. 3, an interior space 22 may be defined by the base 11 such that the interior space 22 can be above the bottom panel 12 and between the front, rear, right and left panels 14, 16, 18 and 19. The interior space 22 may be configured to receive one or more wipe substrates 24 as shown in FIG. 4, for example, in the form of a stack of wipes or a roll of wipes. The interior space 22 may be sized as desired, for example, to store more than 10, 50, 100, 200, or even more than 500 wipe substrates 24.

The container 10 may also include a lid 20 hingedly connected to the rear panel 16. It will be appreciated that the lid 20 could also be connected to the base 11 via other suitable means, including for example, a free standing lid (not shown) which can attached to the top ridge 17 of the base 11. As shown in FIGS. 1-4, the lid 20 may further include a major portion 26 and a minor portion 28 (which is more clearly illustrated in FIGS. 1 and 2). When in the closed position the major portion 26 of the lid 20 can be configured to be securable to the base 11 by engaging the top ridge 17, as shown in FIGS. 1, 2 and 4. This securable configuration facilitates opening and closing of a major opening 30 thus restricting or permitting access to the interior space 22 defined by the base 11. For example, the major portion 26 may be rotated about hinge 27 until there is sufficient space for a consumer to place a supply of wipe substrates 24 into the interior space 22 of the container 10. The major portion 26 may then be returned to its initial position so that the interior space 22 can be completely enclosed.

As shown in FIGS. 1 and 2, the minor portion 28 of the lid 20 can be hingedly connected to the major portion 26 via a hinge 29. The major portion 26 can define a minor opening 32 whereby the minor opening 32 can communicate with the interior space 22 when the major

portion 26 is in the closed position. The minor portion 28 can be configured to selectively move between a first position 33 and a second position 35 to restrict or permit access to the minor opening 32. While in the first position 33 (e.g., closed position), such as shown in FIG. 1, the minor portion 28 can restrict access to the minor opening 32. While in the second position 35 (e.g., opened position), such as illustrated in FIG. 2, the minor portion 28 can permit access to the interior space 22. As further illustrated in FIGS. 1, 2 and 4, the lid 20 can further include a locking mechanism (e.g., button 34) which can be associated with the major portion 26 and configured to selectively maintain the minor portion 28 in the first position. The button 34 may be operatively engaged with the minor portion 28 so that when a consumer properly manipulates the button 34, the minor portion 28 of the lid 20 is repositioned (e.g., opened) to expose the minor opening 32 and an orifice 36 (the orifice 36 may be configured as described in more detail hereinbelow). For example, the button 34 may retract and/or reposition a locking arm (not shown) that resists the force of a lifting mechanism such as a spring (not shown) or the like. In this example, once the locking arm is properly repositioned, the spring may then apply sufficient force to at least partially open the minor portion 28 of the lid 20. It is to be understood that the actuating means is not limited to a button, but may include any actuating means for opening the lid of a wipes container known in the art.

In an embodiment the container herein comprises a lid and a base and is formed at least partially from a first polymer, the first polymer is synthetic and is at least partially derived from a renewable resource via a first primary intermediate compound, the first primary intermediate compound being monomeric, and at least one of the lid and the base comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B. Thus the container can be formed in whole or in part by one or more synthetic polymers described herein which are derived from a renewable resource. For example, the base of the wipes container can be formed from a synthetic polymer derived from a renewable resource, but the lid of the container can be formed from a synthetic polymer derived from a petroleum source. It is contemplated that the wipes container can comprise a first synthetic polymer which is derived from a renewable resource such that anywhere from about 10% to about 100% of the container is formed from the first synthetic polymer.

As noted herein, the lid 20 of the container 10 may include an orifice 36 for accessing wipes 32 stored inside the container 10. For example, the orifice 36 may be configured such that a consumer is able to extract a wipe substrate 24 stored in the container 10 through the orifice 36. While the orifice 36 is shown in FIGS. 2-4 as being disposed on the major portion 26 of the lid

20, it is to be understood that the orifice 36 may be disposed on any suitable panel 14, 16, 18 and/or 19 as desired. As further illustrated in FIGS. 2-5, the orifice 36 can include a sheet 38 and a continuous slit 40. The sheet 38 can have a top surface 39 and bottom surface 42. The continuous slit 40 can extend across the top surface 39 and the bottom surface 42 of the sheet 38. The continuous slit 40 can be sized to allow for a wipe substrate 24 to pass from the interior space 22 of the base 11 to a location outside of the container 10 as it is pulled and extracted by a consumer. It will be appreciated that the continuous slit 40 can have a variety of different configurations, for example, a continuous slit can form a straight path (as shown in the embodiment of FIG. 5), a curved path, or any other suitable configuration to assist in controlling the removal of wipe substrates from the interior space 22 of the container 10. It will be appreciated that an orifice may take any suitable shape desired or include any suitable feature known in the art.

The orifice may be made from a relatively rigid material such as thermoplastic materials including polypropylene (PP), polyethylene (PE), polystyrene, polyethyleneterephthalate (PET), polypropylene/polyethylene co-polymers, and combinations thereof. A relatively rigid orifice made from a thermoplastic material will typically have a thickness of about 1 mm or from about 0.4 mm to about 2 mm. However, it is to be understood that any thickness of orifice may be suitable for use herein, as desired. The orifice may be made from a relatively flexible material such as a thermoplastic material such as films and/or laminate films made from polypropylene, polyethylene, polystyrene, polyethyleneterephthalate, polyvinylchloride, oriented polypropylene, and combinations thereof. A relatively flexible orifice made from a thermoplastic material will typically have a thickness of about 70 μm or microns, or from about 20 to about 400 μm or microns. The relatively flexible orifice material may also be an elastomeric material such as a thermoplastic elastomer such as styrenic block copolymer elastomers such as styrene-butadiene-styrene elastomers, styrene-ethylene-propylene-styrene elastomers, styrene-isoprene-styrene elastomers, thermoplastic polyurethanes, plasticized PVC, and combinations thereof. In certain embodiments, a relatively flexible orifice made from a thermoplastic elastomer may have a thickness of from about 10 μm to about 3 mm. The relatively rigid orifices may result in increased dispensing forces compared to relatively flexible material at least in part due to the relative differences in flexibility in the two materials. The present orifices may include the characteristics as described in the following patent and patent publications: U.S. Patent Nos. 6,766,919; 6,592,004; 6,523,690; U.S. Publication No. 2008/0135572, the entire disclosures of which are hereby incorporated by reference herein.

As shown in FIG. 4, the container 10 can be loaded with at least one wipe substrate 24, thereby forming a wipes product 9. The wipe substrates 24 of the present disclosure may include one or more layers of nonwoven web. The wipe substrates 24 may also include one or more layers of other material, as desired. The wipe substrates may have a basis weight of from about 30 to about 120 grams per square meter (gsm); from about 40 to about 70 gsm; or from about 50 to about 60 gsm. The nonwoven suitable for use herein may be made by any means commonly known in the art, such as, for example spunbonding and meltblowning. The present wipe substrates can be formed from materials and by methods described in the following patent, patent applications and patent publications: U.S. Patent No. 4,100,324; U.S. Publication Nos. 2005/0214335 and 2003/0104747; WO 2002/053365 and WO 2002/053003, the entire disclosures of which are hereby incorporated by reference herein.

Likewise, the nonwovens suitable for use herein may be consolidated using any means commonly known in the art, such as, for example hydroentanglement, thermal calender bonding, through air thermal bonding, chemical bonding, needlepunching, and the like. The wipe substrates can be formed by a process known as hydroentanglement. As used herein, the term "hydroentanglement" generally means a process of making a nonwoven through the treatment of a starting substrate. The treatment typically comprises the steps of supporting a layer of loose fibrous material on an apertured member, and subjecting the layer to water pressures that are sufficient to cause the individual fibers to mechanically entangle with other fibers and possibly other web layers of a substrate. The apertured member can be made from any suitable surface including, but not limited to: a woven screen, a perforated metal plate, and the like. In certain embodiments, the method of making a nonwoven web may include the steps of carding followed by hydroentanglement. The present wipe substrates can be formed via hydroentanglement and other methods described in the following patent publications U.S. Publication Nos. 2008/0135572 and 2005/0125877; and WO 2010/125545, the entire disclosures of which are hereby incorporated by reference herein.

The wipe substrates can be formed from any of the synthetic polymers, individually or in combination, as described herein. The wipe substrates can be formed from the same or different synthetic polymers from which the wipes container is formed.

Nonwoven webs and fibrous layers used herein may be made from fibers chosen to provide desired end properties in the wipe substrate including, but not limited to: softness, thickness, and strength. Examples of suitable fibers include thermoplastic fibers, non-thermoplastic fibers and mixtures thereof. The fibers and combinations of fibers may additionally

comprise a certain percentage of each layer of the laminates as: multi-component, or conjugate fibers, such as bicomponent fibers; biconstituent fibers; non-round fibers; and combinations thereof.

Wipe substrates according the present disclosure may have a plurality of first and second regions that provide a sensation of texture to a consumer. The texture may cause a consumer to perceive the wipe substrates as having the thickness and feel typically associated with cloth, even when the wipes are pre-moistened. The texture may also provide the wipes with good cleaning and liquid retention characteristics.

The present wipe substrates and/or nonwoven layers from which they can be made may be imparted with texture via methods described in the following patent applications and publications: U.S. Pat. Nos. 5,143,679; 5,518,801; 5,650,214; 5,691,035; 5,914,084; 6,114,263; 6,129,801; 6,383,431; 5,628,097; 5,658,639; and 5,916,661; WO Publication Nos.: 2003/0028165A1; WO 2004/059061; WO 2004/058117; and WO 2004/058118; U.S. Publication Nos.: 2008/0135572; 2005/0125877; 2004/0131820A1; 2004/0265534A1; WO 2004/058117A1 (U.S. patent application Ser. No. 10/737,306); and WO 2006/009997A2 (U.S. patent application Ser. No. 11/155,805).

Various types of disposable wipe substrates are available. Such wipe substrates can include dry products or saturated or pre-moistened products. Saturated or pre-moistened products are used in a variety of different wiping and polishing applications. Pre-moistened wipe substrates may be treated with an antibacterial agent and packaged as sanitary wipes products.

The wipe substrates disclosed herein may include one or more personal care composition that are commonly known to be included in wipe substrates and/or suitable for cleaning the body of a child. Nonlimiting examples of such personal care compositions may be found in U.S. Publication Nos. 2005/0125877; 2005/0008680; 2005/0008681; and 2006/0058210. Any portion of a wipe substrates may be coated with a lotion as is known in the art. Examples of suitable lotions include those described in U.S. Patent Nos. 5,607,760; 5,609,587; 5,635,191; and 5,643,588.

The wipe substrates disclosed herein may include one or more hard surface cleaning composition that are commonly known to be included in wipe substrates and suitable for cleaning various hard surfaces. Nonlimiting examples of such hard surface cleaning compositions may be found in U.S. Publication No. 2009/0124525.

The wipes container and/or the wipe substrates can be partially or fully covered with an overwrap package. The overwrap package may comprise a variety of materials including, but not

limited to, thermoplastic films, nonwovens, wovens, foils, fabrics, papers, cardboard, elastics, cords, straps, and combinations thereof. Other suitable package structures and overwraps are described in U.S. Patent Nos. 4,846,587; 4,934,535; 4,966,286; 5,036,978; 5,050,742; and 5,054,619. In certain embodiments, the overwrap package comprises a synthetic polymer (e.g., a polyolefin) derived form a renewable resource such that it is formed at least partially from a fourth polymer, the fourth polymer is synthetic and is at least partially derived from a fourth renewable resource via a fourth primary intermediate compound, the fourth primary intermediate compound is monomeric, the overwrap package comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B. Moreover, the overwrap package may be in the form of a film. Such overwrap package can be formed from any of the synthetic polymers, individually or in combination, as described herein.

The overwrap package is not limited in size; however, in certain embodiments, the size of the overwrap package should be no greater than is required to contain the wipe substrates and/or container.

The container, wipe substrates, and/or overwrap package can be formed from the same or different synthetic polymers, as disclosed herein, that are at least partially derived from a renewable resource via an intermediate compound, wherein the intermediate compound is monomeric.

V. Communicating a Related Environmental Message a Consumer

The present invention may further comprise a related environmental message or may further comprise a step of communicating a related environmental message to a consumer. The related environmental message may convey the benefits or advantages of the wipes product comprising a polymer derived from a renewable resource. The related environmental message may identify the wipes product as: being environmentally friendly or Earth friendly; having reduced petroleum (or oil) dependence or content; having reduced foreign petroleum (or oil) dependence or content; having reduced petrochemicals or having components that are petrochemical free; and/or being made from renewable resources or having components made from renewable resources. This communication is of importance to consumers that may have an aversion to petrochemical use (e.g., consumers concerned about depletion of natural resources or consumers who find petrochemical based products unnatural or less environmentally friendly) and to consumers that are environmentally conscious.

The communication may be effected in a variety of communication forms. Suitable communication forms include a package label with an indicia, store displays, posters, billboard, computer programs, brochures, package literature, shelf information, videos, advertisements, internet web sites, pictograms, iconography, or any other suitable form of communication. The information could be available at stores, on television, in a computer-accessible form, in advertisements, or any other appropriate venue. Ideally, multiple communication forms may be employed to disseminate the related environmental message.

The communication may be written, spoken, or delivered by way of one or more pictures, graphics, or icons. For example, a television or internet based-advertisement may have narration, a voice-over, or other audible conveyance of the related environmental message. Likewise, the related environmental message may be conveyed in a written form using any of the suitable communication forms listed above. In certain embodiments, it may be desirable to quantify the reduction of petrochemical usage of the present wipes product compared to wipes products that are presently commercially available.

The related environmental message may also include a message of petrochemical equivalence. Some renewable, naturally occurring, or non-petroleum derived polymers are known. However, these polymers often lack the performance characteristics that consumers have come to expect when used in wipes products. Therefore, a message of petroleum equivalence may be necessary to educate consumers that the polymers derived from renewable resources, as described herein, exhibit equivalent or better performance characteristics as compared to petroleum derived polymers. A suitable petrochemical equivalence message can include comparison to a wipes product that does not have a polymer derived from a renewable resource as described herein. For example, a suitable combined message may be, "Wipes Product Brand A with an environmentally friendly material is just as effective as Wipes Product Brand B." This message conveys both the related environmental message and the message of petrochemical equivalence.

VI. Method of Making a Wipes Product Having a Polymer Derived from a Renewable Resource

The present disclosure further relates to a method for making a wipes product comprising a synthetic polymer derived from a renewable resource. The method comprises the steps of providing a renewable resource; deriving an intermediate monomer from the renewable resource; polymerizing the intermediate monomer to form a synthetic polymer and incorporating the

synthetic polymer into a wipes product. The present disclosure further relates to providing one or more of the wipes products to a consumer and communicating reduced petrochemical usage to the consumer. The synthetic polymer derived from renewable resources may undergo additional process steps prior to incorporation into the wipes product.

In accordance with another embodiment, a method for making a wipes product comprises the steps of providing a first renewable resource, deriving a first intermediate monomeric compound from the first renewable resource, polymerizing the first intermediate monomeric compound to form a first polymer that is synthetic, and incorporating the first polymer into a wipes product. The wipes product comprises a container and at least one wipe substrate. The container comprises a lid and a base. The base defines an interior space. The at least one wipe substrate is at least partially disposed within the interior space. At least one of the lid and the base exhibits a bio-based content from about 10% to about 100% using ASTM D6866-10, method B.

VII. Validation of Polymers Derived from Renewable Resources

A suitable validation technique is through ^{14}C analysis. A small amount of the carbon dioxide in the atmosphere is radioactive. This ^{14}C carbon dioxide is created when nitrogen is struck by an ultra-violet light produced neutron, causing the nitrogen to lose a proton and form carbon of molecular weight 14 which is immediately oxidized to carbon dioxide. This radioactive isotope represents a small but measurable fraction of atmospheric carbon. Atmospheric carbon dioxide is cycled by green plants to make organic molecules during photosynthesis. The cycle is completed when the green plants or other forms of life metabolize the organic molecules, thereby producing carbon dioxide which is released back to the atmosphere. Virtually all forms of life on Earth depend on this green plant production of organic molecules to grow and reproduce. Therefore, the ^{14}C that exists in the atmosphere becomes part of all life forms, and their biological products. In contrast, fossil fuel based carbon does not have the signature radiocarbon ratio of atmospheric carbon dioxide.

Assessment of the renewably based carbon in a material can be performed through standard test methods. Using radiocarbon and isotope ratio mass spectrometry analysis, the bio-based content of materials can be determined. ASTM International, formally known as the American Society for Testing and Materials, has established a standard method for assessing the bio-based content of materials. The ASTM method is designated ASTM D6866-10.

The application of ASTM D6866-10 to derive a "bio-based content" is built on the same

concepts as radiocarbon dating, but without use of the age equations. The analysis is performed by deriving a ratio of the amount of organic radiocarbon (^{14}C) in an unknown sample to that of a modern reference standard. The ratio is reported as a percentage with the units "pMC" (percent modern carbon).

The modern reference standard used in radiocarbon dating is a NIST (National Institute of Standards and Technology) standard with a known radiocarbon content equivalent approximately to the year AD 1950. AD 1950 was chosen since it represented a time prior to thermo-nuclear weapons testing which introduced large amounts of excess radiocarbon into the atmosphere with each explosion (termed "bomb carbon"). The AD 1950 reference represents 100 pMC.

"Bomb carbon" in the atmosphere reached almost twice normal levels in 1963 at the peak of testing and prior to the treaty halting the testing. Its distribution within the atmosphere has been approximated since its appearance, showing values that are greater than 100 pMC for plants and animals living since AD 1950. It's gradually decreased over time with today's value being near 107.5 pMC. This means that a fresh biomass material such as corn could give a radiocarbon signature near 107.5 pMC.

Combining fossil carbon with present day carbon into a material will result in a dilution of the present day pMC content. By presuming 107.5 pMC represents present day biomass materials and 0 pMC represents petroleum derivatives, the measured pMC value for that material will reflect the proportions of the two component types. A material derived 100% from present day soybeans would give a radiocarbon signature near 107.5 pMC. If that material was diluted with 50% petroleum derivatives, for example, it would give a radiocarbon signature near 54 pMC (assuming the petroleum derivatives have the same percentage of carbon as the soybeans).

A biomass content result is derived by assigning 100% equal to 107.5 pMC and 0% equal to 0 pMC. In this regard, a sample measuring 99 pMC will give an equivalent bio-based content value of 92%.

Assessment of the materials described herein is done in accordance with ASTM D6866. The mean values quoted in this report encompasses an absolute range of 6% (plus and minus 3% on either side of the bio-based content value) to account for variations in end-component radiocarbon signatures. It is presumed that all materials are present day or fossil in origin and that the desired result is the amount of biobased component "present" in the material, not the amount of biobased material "used" in the manufacturing process.

In one embodiment, the wipes product can include a wipes container such that at least one of the lid and the base exhibits a bio-based content value from about 10% to about 100% using

ASTM D6866-10, method B. In another embodiment, a wipes product can include a wipes container such that at least one of the lid and the base exhibits a bio-based content value from about 25% to about 100% using ASTM D6866-10, method B. In yet another embodiment, a wipes product can include a wipes container such that at least one of the lid and the base exhibits a bio-based content value from about 50% to about 100% using ASTM D6866-10, method B. It is further contemplated that the wipes substrates and the overwrap package discussed herein can also have bio-based content values similar to those of the wipes container.

In order to apply the methodology of ASTM D6866-10 to determine the bio-based content of any of the components (e.g. container, wipe substrates, overwrap) of the wipes product, a representative sample of the component must be obtained for testing. In one embodiment, the entire component can be ground into particulates less than about 20 mesh using known grinding methods (e.g., Wiley® mill), and a representative sample of suitable mass taken from the randomly mixed particles.

VIII. Test Methods

Prior to testing, any outer film wrap or cardboard sleeve is removed from the outside of the wipes product. All samples are conditioned at 73° ± 3 F° (23° ± 2 C°) and a relative humidity of 20-70 percent for a period of at least 4 hours prior to testing. Testing is begun within five minutes after the wipes product has been removed from the preconditioning atmosphere.

A. Torque Test

The Torque Test measures the torque in inch-pound needed to remove the button 34 from the wipes container. It is an indicator of the force required if a child attempts to remove the button from the wipes container. If the button 34 does not have a free edge opposite of its hinge, the Torque Test Failure Rate is recorded as zero. The measurement is made using a torque gauge, such as a Chatillon DFS-R Series torque gauge (Largo, Florida) or equivalent having a load cell capable of 50 in-lbs at an accuracy of ± 0.2 in-lb fitted with a screw clamp used to grip the button 34. The clamp gripping surfaces are 0.5 in. long by 0.25 in. wide. The clamp shall be capable of holding the button 34 firmly and transmitting a torsion force.

For testing, the minor portion 28 of the lid 20 is removed from the product. The container 10 and lid 20 are held in a stationary vice to immobilize the container and lid during testing, such that the unhinged side of the button 34 is directed upward. The button is secured between the faces of the clamp midway between the hinged edge and the distal edge applying sufficient force

that the button will not slip as torsion force is applied. Torque is then applied to the button 34 at a rate of 0.6 to 0.8 inch/sec. in a clockwise direction to a maximum of 10.1 in-lbs or until a failure or release of the button has occurred. A Torque Test Failure Rate is considered zero if no part of the button 34 separates from the wipes product. If failure or release of the button does occur, record the torsion force to ± 0.1 in-lbs.

B. Tension Test

The Tension Test measures the force needed to remove the button 34 from the wipes container. It is an indicator of the force required if a child attempts to remove the button from the wipes container.

If the button 34 does not have a free edge opposite of its hinge, the Tension Test Failure Rate is recorded as zero. The measurement is made using a force gauge, such as a Chatillon DFE-50 Force Gauge, (Largo, Florida) or equivalent having a load cell capable of 50 in-lbs at an accuracy of ± 0.2 in-lb fitted with a screw clamp used to grip the button 34. The clamp gripping surfaces are 0.5 in. long by 0.25 in. wide. The clamp shall be capable of holding the button 34 firmly and transmitting a tension force.

For testing, the minor portion 28 of the lid 20 is removed from the product. The container 10 and lid 20 are held in a stationary vice to immobilize the container and lid during testing, such that the unhinged side of the button 34 is directed upward. The button is secured between the faces of the clamp midway between the hinged edge and the distal edge applying sufficient force that the button will not slip as torsion force is applied. The button is then rotated 90 degrees such that it is directed perpendicular to the plane of the lid of the product. Force is then applied to the button 34 at a rate of 0.6 to 0.8 inch/sec. perpendicular to the plane of the lid to a maximum of 9.0 in-lbs or until a failure or release of the button has occurred. A Tensile Test Failure Rate is considered zero if no part of the button 34 separates from the wipes product. If failure or release of the button does occur, record the peak force to ± 0.1 in-lbs.

C. Drop Test

The Drop Test measures the failure of the wipes product if dropped on a standard surface. It is an indicator of the failure rate if a child drops the wipes product. Each wipes product is tested whole with the wipes inside the container. The impact surface consist of a 1/8-inch (0.3-centimeter) nominal thickness of type IV vinyl-composition tile, composition 1-asbestos free, as specified by paragraphs 1.2 and 3.1.4 of Interim Amendment-1(YD), dated November 14, 1979,

to the Federal Specification entitled Tile, Floor: Asphalt, Rubber, Vinyl, Vinyl-Asbestos, SS-T-312B, dated October 10, 1974. The test surface rests upon at least a 2.5-inch (6.4-centimeter) thickness of concrete. The impact area shall be at least 3 square feet (0.3 square meter).

The wipes product is dropped from a random orientation from a height of 4.5 feet ± 0.5 inch (1.37 meters) onto the impact surface. After each drop, the wipes product is allowed to come to rest and examined and evaluated before continuing. The same wipes product is dropped ten times or until any portion of the wipes product breaks loose. If upon impact, the minor portion 28 or the lid 20 pops open, close before the next drop. A Drop Test Failure Rate is considered zero if no part of the wipes product breaks loose within 10 drops. If any portion or fragment of the wipes product breaks loose, record the number of drops at which the failure occurs.

The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range surrounding that value. For example, a dimension disclosed as "40 mm" is intended to mean "about 40 mm."

All documents cited in the Detailed Description are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention. To the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

CLAIMS

WHAT IS CLAIMED IS:

1. A wipes product comprising:

a) a container comprising a lid and a base, wherein the base defines an interior space, the container is formed at least partially from a first polymer, the first polymer is synthetic and is at least partially derived from a renewable resource via a first primary intermediate compound, the first primary intermediate compound being monomeric, and at least one of the lid and the base comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B, in another embodiment from 50% to about 100% using ASTM D6866-10, method B ; and

b) at least one wipe substrate at least partially disposed within the interior space.

2. The wipes product of claim 1, wherein the at least one of the lid and the base comprises a density of about 0.85 g/cc to about 0.99 g/cc, in another embodiment about 0.89 g/cc to about 0.96 g/cc.

3. The wipes product of claim 1, wherein the first polymer has a Melt Flow Index of about 12 g/10 min to about 100 g/10 min, in another embodiment about 40 g/10 min to about 60 g/10 min.

4. The wipes product of claim 1, wherein the first polymer is a copolymer comprising monomers selected from the group consisting of propylene, ethylene, butadiene and combinations thereof.

5. The wipes product of claim 1, wherein the first polymer is at least partially derived from a renewable resource via a first primary intermediate compound and a first secondary intermediate compound, wherein the first secondary intermediate compound is formed prior to the first primary intermediate compound.

6. The wipes product of claim 1, wherein the first secondary intermediate compound is selected from the group consisting of organic acids, sugars, monofunctional alcohols, polyfunctional alcohols, organic aldehydes, organic esters, and combinations thereof.

7. The wipes product of claim 1, wherein the first polymer is a polyolefin selected from the group consisting of polypropylene, polyethylene, and combinations thereof.

8. The wipes product of claim 1, wherein the container is also formed from a second polymer, the second polymer is synthetic and is at least partially derived from a second renewable resource via a second primary intermediate compound, the second primary intermediate compound is monomeric.

9. The wipes product of claim 1, wherein the at least one wipe substrate is formed at least partially from a third polymer, the third polymer is synthetic and is at least partially derived from a third renewable resource via a third primary intermediate compound, the third primary intermediate compound is monomeric, and the at least one wipe substrate comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B.

10. The wipes product of claim 9, wherein the first polymer and the third polymer are different.

11. The wipes product of claim 1, further comprising an overwrap package, wherein the overwrap package is formed at least partially from a fourth polymer, the fourth polymer is synthetic and is at least partially derived from a fourth renewable resource via a fourth primary intermediate compound, the fourth primary intermediate compound is monomeric, the overwrap package comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B, wherein the overwrap package is in the form of a film.

12. The wipes product of claim 1, having a Drop Test Failure Rate of zero when the wipes product is dropped 10 times or less.

13. A container for a wipes product, the container being formed at least partially from a first polymer, the first polymer being synthetic and at least partially derived from a renewable resource, the container comprising:

a) a base defining an interior space, the interior space having a major opening, the base comprising a bottom panel, a top ridge, and at least one side panel;

b) a lid comprising a major portion and a minor portion, the minor portion being hingedly connected to the major portion, the major portion being configured to be securable to the base to selectively facilitate closure of the major opening, the major portion defines a minor opening, the minor opening communicating with the interior space, the minor portion being selectively moveable between a first position and a second

position, the minor portion closes the minor opening when in the first position, the minor portion permits access to the interior space through the minor opening when in the second position; and

c) wherein at least one of the base and the lid comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B, and wherein at least one of the base and the lid comprises a density ranging from about 0.85 g/cc to about 0.99 g/cc.

14. The container of claim 13, wherein the lid further comprises a locking mechanism associated with the major portion and configured to selectively maintain the minor portion in the first position, wherein the major portion is hingedly connected to the at least one side panel.

15. The container of claim 13, further comprising a orifice extending across the minor opening, wherein the orifice comprises:

a) a sheet having a top surface and a bottom surface; and

b) a continuous slit extending across the top and bottom surfaces of the sheet and through which a wipe substrate can pass.

16. The container of claim 15, having a Torque Test Failure Rate of zero when the locking mechanism sustains a torque force up to about 10.1 in-lbs in another embodiment sustains a tension force up to about 9.0 in-lbs.

17. A wipes product having a Drop Test Failure Rate of zero when the wipes product is dropped 10 times or less, the wipes product comprising:

a) a container comprising a lid and a base, wherein the base defines an interior space, the container is formed at least partially from a first polymer, the first polymer is synthetic and is at least partially derived from a renewable resource, and at least one of the lid and the base comprises a bio-based content of about 10% to about 100% using ASTM D6866-10, method B; and

b) at least one wipe substrate at least partially disposed within the interior space.

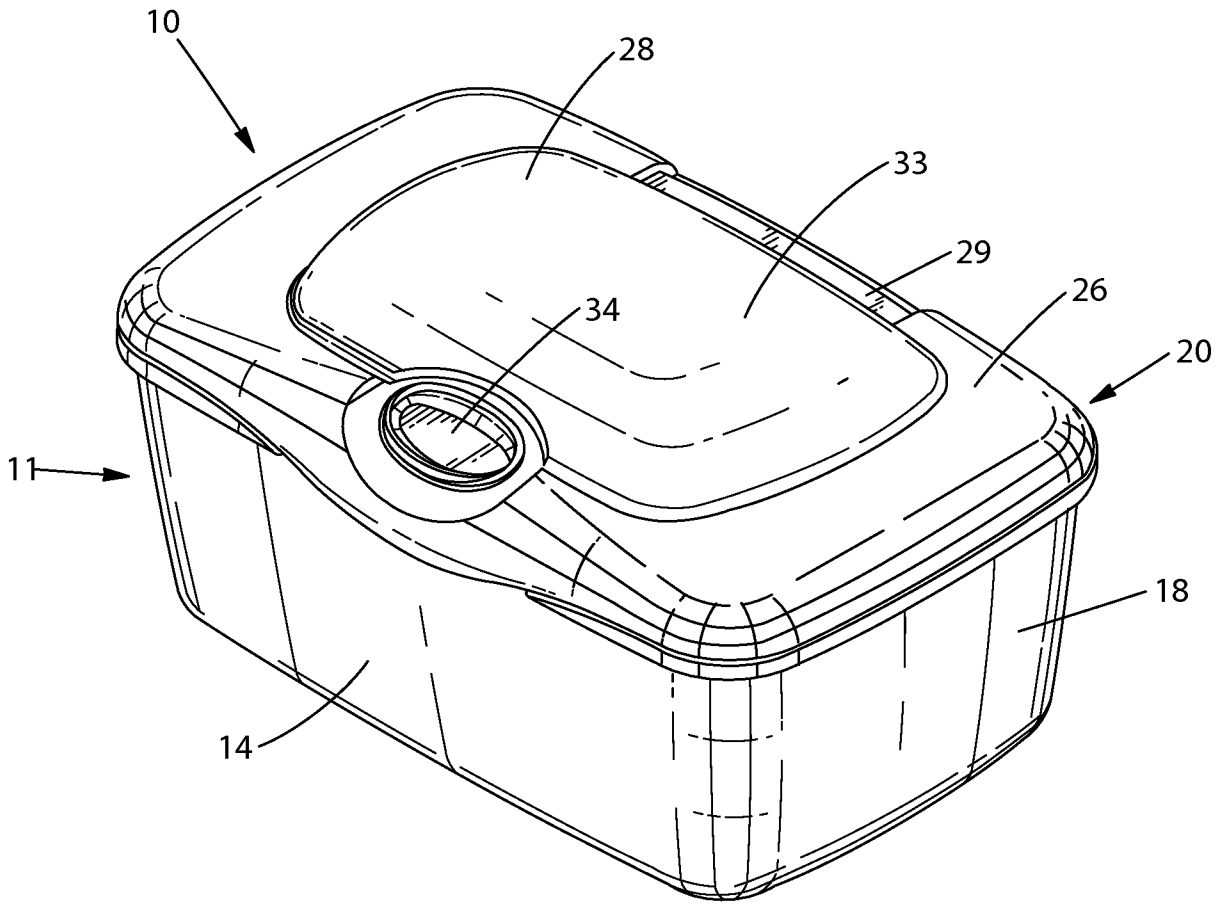


Fig. 1

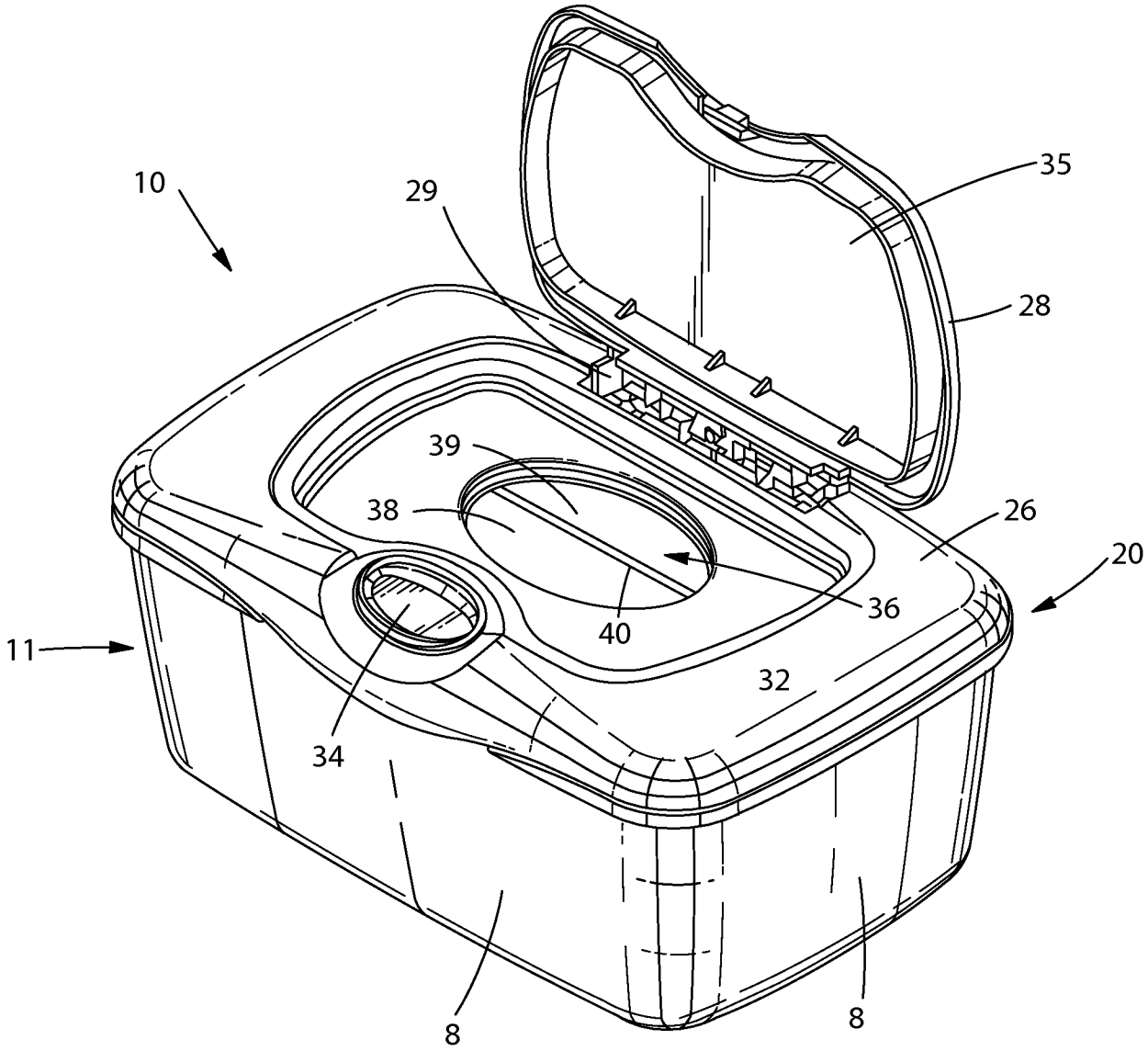


Fig. 2

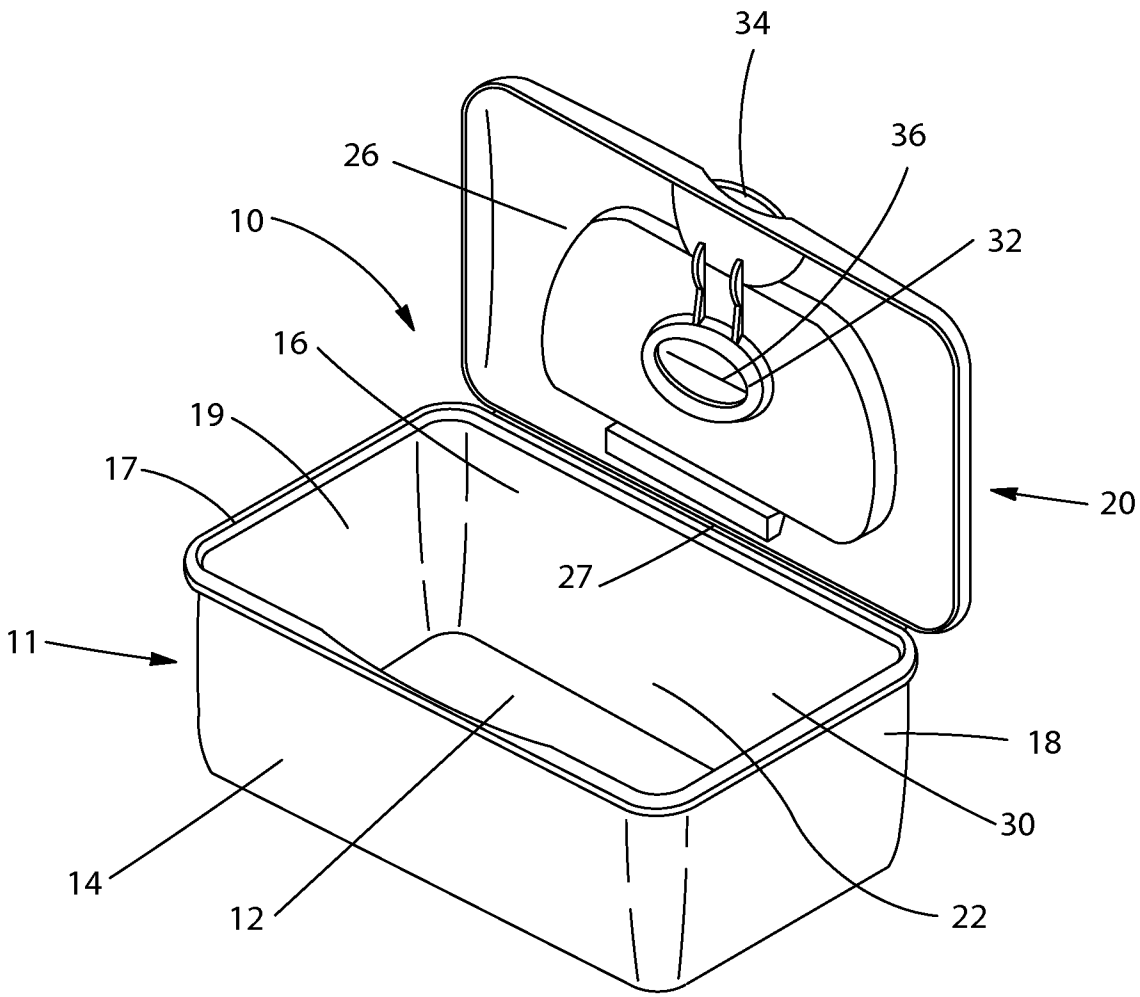


Fig. 3

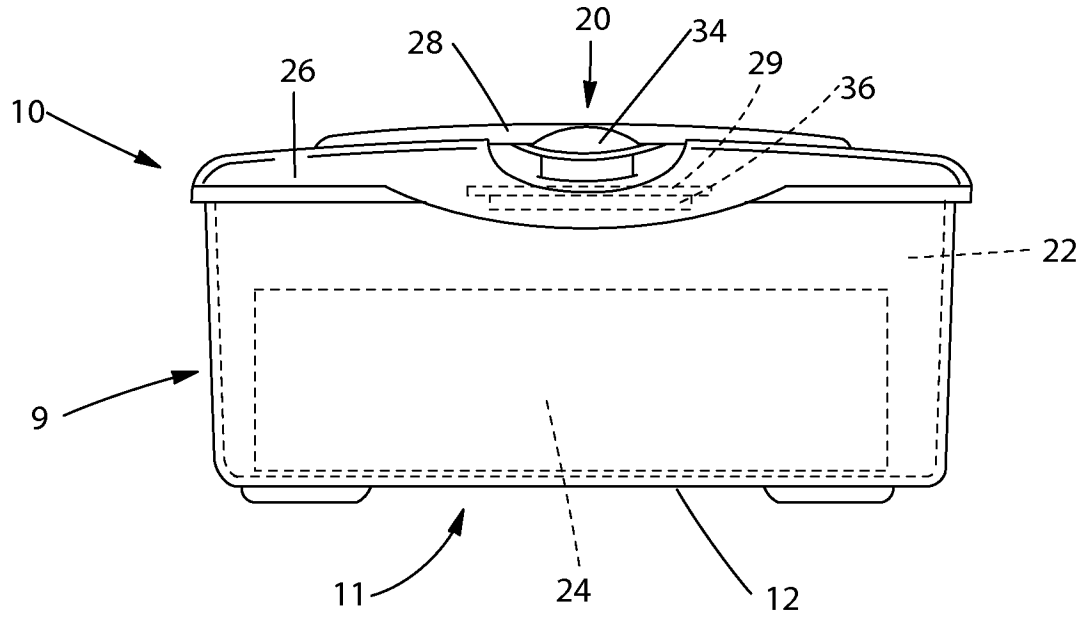


Fig. 4

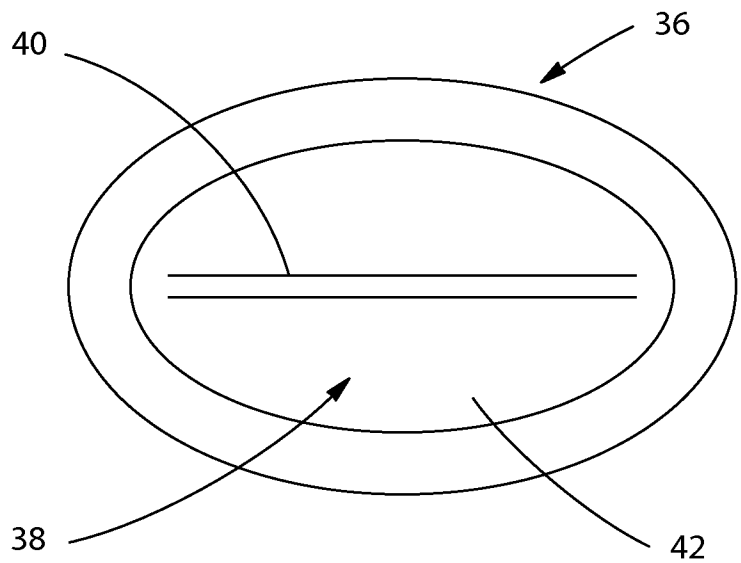


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/064116

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D83/08 A47K10/42
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D A47K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2007/130439 A2 (FRESH INC DR [US]) 15 November 2007 (2007-11-15) paragraph [0011]; figure 1	1-11, 13-15
Y	US 2008/312485 A1 (TAKAI TOSHIHIRO [JP] ET AL) 18 December 2008 (2008-12-18) cited in the application paragraph [0038]; claim 1; example 1	1-11, 13-15
Y	US 4 138 034 A (MCCARTHY ROBERT F) 6 February 1979 (1979-02-06) column 3, line 62 - line 64	11

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 February 2012	06/03/2012

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Bridault, Alain

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/064116

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 12, 16, 17
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 12, 16, 17

Present claims 12, 16 and 17 relate to a product defined (inter alia) by reference to the following parameters: Drop Test Failure Rate; Torque Test Failure Rate.
The use of these parameters in the present context is considered to lead to a lack of clarity because the claims do not clearly identify the products encompassed by them as the parameter cannot be clearly and reliably determined by indications in the description or by objective procedures which are usual in the art. The procedures disclosed in the description are not standard and this makes it impossible to compare the claims to the prior art. As a result, the application does not comply with the requirement of clarity under Article 6 PCT.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2011/064116

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2007130439 A2	15-11-2007	CN 101448445 A	03-06-2009
		US 2007262088 A1	15-11-2007
		WO 2007130439 A2	15-11-2007
US 2008312485 A1	18-12-2008	BR PI0618557 A2	06-09-2011
		CN 101304963 A	12-11-2008
		EP 1953129 A1	06-08-2008
		US 2008312485 A1	18-12-2008
		WO 2007055361 A1	18-05-2007
US 4138034 A	06-02-1979	NONE	