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(54) Titre : EMBALLAGE AUTO-CHAUFFANT POUR LINGETTES PRE-HUMIDIFIEES  
(54) Title: SELF HEATING PRE-MOISTENED WIPE(S) PACKAGE

(57) Abrégé/Abstract:  
A package for storing and heating a product is provided. The package includes a first sealable envelope having a region located inside the first sealable envelope. The region contains a first agent. The package further includes a sealed bag located inside the first sealable envelope and containing a second agent. The sealed bag is capable of being breached at a section allowing the second agent to react with the first agent generating heat within a heating region. The package further includes a second sealable envelope comprising a region for containing the product. A portion of the second sealable envelope is located within the heating region and the heat from the reaction heats the product located in the heating region. The first sealable envelope is compressible about the section of the sealed bag and contents of the first sealable envelope about the section of the sealed bag are flexible.
ABSTRACT

A package for storing and heating a product is provided. The package includes a first sealable envelope having a region located inside the first sealable envelope. The region contains a first agent. The package further includes a sealed bag located inside the first sealable envelope and containing a second agent. The sealed bag is capable of being breached at a section allowing the second agent to react with the first agent generating heat within a heating region. The package further includes a second sealable envelope comprising a region for containing the product. A portion of the second sealable envelope is located within the heating region and the heat from the reaction heats the product located in the heating region. The first sealable envelope is compressible about the section of the sealed bag and contents of the first sealable envelope about the section of the sealed bag are flexible.
TITLE: SELF-HEATING PRE-MOISTENED WIPE(S) PACKAGE

This invention utilizes a self-heating package for the purpose of containing and heating a pre-moistened wipe(s). It relates to a pre-moistened wipe(s) for the purpose of cleaning parts of the human body or any relevant surface. Said pre-moistened wipe(s) is contained in a flexible insulated package heated by an exothermic reagent.

Pre-moistened wipe(s) have been utilized to clean various surfaces. Examples include U.S. Pat. No. 4,666,621/CA Pat. No. 2,100,814 and CA Pat. No. 2,303,306. Previous pre-moistened wipe(s), for the purpose of cleaning the human body include U.S. Pat. No. 5,595,807. None of the aforementioned include a heating agent for the purpose of providing a warm or hot cleaning material. One advantage of a heated pre-moistened wipe(s) is to avoid the sudden discomfort on initial contact with human skin. Another advantage is to enhance the cleaning experience of parts of the human body when a shower is unavailable. Yet another advantage of a heated pre-moistened wipe(s) is the fact that heat increases the efficacy of breaking down grease or oil compounds and loosening dirt.


Examples of flexible, chemical thermal bags are also well known. Although they are comprised of flexible outer housing, they do not enclose any substance to be heated such as pre-

None of the afore mentioned references describes the novel enhancements to be mentioned hereinafter and defined as a self heating pre-moistened wipe(s) package. Moreover, they do not outline the advantages inherent within this design. The heated pre-moistened wipe(s) package has several advantages, as outlined below, when there are multiple chambers or bladders, which allows control of the temperature profile independently of the initial dissolution of a component in solvent.

**SUMMARY OF THE INVENTION**

- A self heating pre-moistened wipe(s) package unique in its design characteristics, constructed to enclose a pre-moistened wipe(s) immersed in a cleaning solution. Although applications are broad in scope, said pre-moistened wipe(s) is ideally suited for cleaning parts of the human body.

- One embodiment of the package consists of a thermally insulated outer pouch contained within said package is an electrolytic-solvent activated exothermic-chemical pad or powder (such as magnesium oxide) enclosed within an absorbent envelope. Also contained is a bag containing electrolytic solvent and a solvent bag or chamber affixed to the inside of the insulating layer of the outer package. When the solvent bag is torn, ruptured, selectively perforating or otherwise compromised, the electrolytic solution within can flow out to trigger an exothermic reaction.
- One objective of the present invention is to provide a heated pre-moistened wipe(s) for the purpose of increased comfort when applied to human skin and cleaning parts of the human body.

- Still another objective of the present invention is to provide a heated pre-moistened wipe(s) to improve the efficacy of said cleaning substance both for the human body or any other relevant surface.

- Yet another objective of the present invention is to provide a heated pre-moistened wipe(s) package which is less bulky, more flexible as well as easily manufactured and therefore more practical.

- Yet another objective of the present invention is to provide a self-heated premoistened wipe(s) package with less discarded packaging.

- Other objectives of the present invention may become more apparent as said invention is described in greater detail in the following descriptions and drawings.

DESCRIPTION OF DRAWINGS

- FIG. 1 is a partial, cross-sectional view of a self-heating pre-moistened wipe(s) package showing the preferred embodiment of the invention.

- FIG.1A is a perspective view of the same embodiment as in FIG. 1 for the present invention.

- FIG. 1B is a perspective view of a self heating pre-moistened wipe(s) package showing a similar embodiment to FIG. 1 only with a slightly different trigger mechanism.

- FIG. 1C is a perspective view of a self heating pre-moistened wipe(s) package showing a similar embodiment to FIG. 1 and FIG. 1B, only with a slightly different trigger mechanism.
- FIG. 1D is a perspective and a cross-sectional view of a self-heating premoistened wipe(s) package of a similar embodiment to FIG. 1 and FIG. 1A only with a specific orientation of said exothermic reagents.

- FIG. 2 is a perspective view of a self heating pre-moistened wipe(s) package of a similar embodiment to FIG. 1 only with a variation in the trigger mechanism used to begin the exothermic reaction.

- FIG. 2A is a perspective view of a self heating pre-moistened wipe(s) package showing a similar embodiment to FIG. 2 only with a slightly different trigger mechanism.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the description and diagrams that follow, specific terminology will be used in describing the details of the present invention for the sake of clarity. It is understood that these terms and/or phrases are not intended to be limiting in any way, shape or form, in their application to the details of construction and to the arrangements of the components set forth in the following description and illustrations. It is understood that in this patent the words “bladder” and “chamber” or their plural forms are understood to denote the same meaning. It is also understood that the terminology used includes all technical equivalents, which are used in a similar manner to accomplish a similar purpose. As such, it is noted and understood by all those skilled in the art that the basic idea of the present invention described in detail in this disclosure may easily be utilized as a basis for the designing of other structures and systems for carrying out similar purposes. It is also understood therefore that this patent includes all such variations, insofar as they do not depart from the basic idea and scope of the present invention which is a self-heating pre-moistened wipe(s) package.
The present invention relates a novel new idea in the form of a pre-moistened wipe(s) that is not only heated, but self-heated in an insulated exothermic package that is flexible and disposable.

FIG. 1 and FIG. 1A reveal the basic design of the preferred embodiment of the invention.

In FIG. 1 the illustration is shown as a partial cross-section of the components of the basic invention. It is comprised of an elongated outer pouch (10) enclosing an inner pre-moistened wipe(s) package (13) containing the pre-moistened wipe(s). In the envelope space formed between the outer pouch (10) and the inner package (13) is located the solvent chamber (20) and the chemical reagent (22). Together they form the heating elements (25) FIG. 1.

Ideally, said outer pouch (10) should be flexible, liquid impermeable and somewhat heat resistant. It may be opaque and made of a laminated material such as blax nylon, polyester such as MYLAR.RTM, polyethylene, polypropylene, aluminum, aluminized polymer film and other conventional plastic or other packaging materials such as rubber, vinyl, vinyl-coated fabric, polyethylene and laminated aluminum foil suitable for containing heated reagents. It should also consist of a thermal insulated layer (12) which may be of a fine cell or cross-linked polyethylene or other suitable material. The composite material sheet is folded together with the folded edge becoming the bottom of the outer pouch (10). The sides are held together preferably with weld seams (11) to form the complete outer pouch (10).

Within said outer pouch is enclosed the inner package (13) containing the premoistened wipe(s). Said inner package (13) should be formed from a heat resistant, durable, liquid impermeable sheet material folded together. The folded edge becomes the bottom of the inner package/pouch (13). Liquid-tight weld seams (14) are made along the length of the sides to form the pouch. Within this pouch is enclosed the premoistened wipe(s). Said pre-moistened wipe(s)
may be of any size, shape, construction, and composition depending on the manufacturer’s requirements and desires. Said premoistened wipe(s) is impregnated with any safe, effective, cleaning solution specifically suited to its application (e.g. cleaning portions of the human body). Furthermore, said pre-moistened wipe(s) is folded over as many times, as few times or not at all, in accordance with the manufacturer’s designs in order to maintain rigidity or flatness of the complete package for design requirements.

With exception to specifics about the pre-moistened wipe(s), FIG. 1 shows all of the above mentioned elements. In addition, it is shown that said inner package (13) has an opening across the top edge (30), located above the upper edge of the outer pouch (10) which can be opened to release said heated pre-moistened wipe(s). In the configuration of FIG. 1, the package is sealed and designed to be torn open by a tear strip (32). However, the actual design could embody any method for sealing, such as a plastic zipper, or an adhesive near the upper edge of the outer pouch (10). In FIG. 1, the inside surface of said outer pouch (10) is sealed against the outside surface of said inner pre-moistened wipe(s) package (13) by weld seams (31). Adhesive strips may also be used in place of weld seams (31). These weld seams prevent cross contamination of said pre-moistened wipe(s) with the enclosed chemicals when said inner pre-moistened wipe(s) package (13) is opened. In addition, weld seams (31) (or adhesive strips) prevent heat loss during the exothermic reaction.

In FIG. 1 there is an envelope formed between the inside of the thermal insulating layer (12) and the outside of the inner package (13). Within this envelope space is located the exothermic components. These components comprise a solvent chamber (20); the solvent chamber basically comprises a bladder made of some liquid impermeable, rupturable plastic-like material containing the solvent for the exothermic reaction. In FIG. 1, said solvent chamber (20)
is large enough to fit snugly in said envelope space and is sealed against the inside of said thermal insulated layer (12) by liquid tight weld seams (23). Said solvent chamber (20) is constructed in such a manner that when specific pressure is applied (in between fingers or against hard surface) the chamber ruptures, releasing said solvent thus triggering the exothermic reaction. Pressure against or along said bladder/chamber selectively ruptures, perforates, or otherwise compromises said bladder/chamber, while leaving the outer surfaces of the package, and the surfaces surrounding the package and said envelope space intact. Said chamber can be comprised of any of a number of functional configurations. In a preferred embodiment, said chamber comprises a rupturable, plastic like material containing the reagent, which is manually ruptured.

The other component of the trigger mechanism is the exothermic reagent (22). This reagent may be magnesium oxide or some other suitable chemical and may be in the form of a powder, pad, gel or even liquid. In FIG. 1, it is in the form of a powder and enclosed in an absorbent envelope (21). The entire envelope (21) may or may not fit snugly in said envelope space. Said envelope (21) may or may not be attached to the outside of said inner package (13) by weld seams (24). The absorbent envelope (21) facilitates the exothermic reaction by absorbing the liquid solvent and bringing it in contact with the exothermic reagent (22) within. Ideally, the absorbent envelope (21) is made from filter paper or similar material. If the exothermic reagent is in the form of a pad, the absorbent envelope could be a sheet of absorbent material wrapped around the exothermic pad. If the reagent is a powder, the powder is sealed within the absorbent envelope (21). If the reagent is a liquid or gel, an absorbent envelope is not necessary. Instead, the exothermic reagent (22) could permeate throughout said envelope space, between said thermal insulated layer (12) and said inner package (13).
As previously stated, FIG. 1 and FIG. 1A depict the ideal embodiment of the invention. FIG. 1B and FIG. 1C depict a similar embodiment encompassing all of the elements in FIG. 1 and FIG. 1A with the exception of a slight variation in the triggering mechanism for the exothermic reaction. FIG. 1B is a perspective view of a self-heated, exothermic pre-moistened wipe(s) package encompassing all of the elements in FIG. 1 and FIG. 1A with the exception of multiple bladders/chambers (20A). Said bladders may be connected or independent of each other. For example, each chamber (20A) embodying the same characteristics as in (20) (FIG. 1) may be independent plastic-like bladders each containing said solvent, positioned and attached by weld seams to the inside of said thermal insulated layer (12), or the individual solvent chambers may be connected to one another by a flat, rigid, plastic substance (20B) that sits in said envelope space as in FIG. 1B. This rigid plastic substance (20B) may be held in place by weld seams (24) or simply snugly into place. Each chamber is designed to be ruptured independently by the application of specific pressure to each bladder. The advantage of this design is that the intensity and duration of the exothermic reaction may be controlled by the individual depending on when and how many chambers are ruptured. Also, the temperature of the pre-moistened wipe(s) may be controlled.

FIG. 1C depicts all of the elements described above with only slight variations in the exothermic trigger mechanism. The multiple chamber (20C) is exactly the same as in FIG. 1B only with round chambers instead of square ones. The number and shape of bladders/chambers are variable depending on the manufacturer’s needs.

FIG. 1D depicts an embodiment that resembles the one depicted in FIG. 1A. It comprises all of the elements of FIG. 1A with a slight variation in the design of the trigger mechanism. The solvent bag (20) is attached to the top of said self-heating premoistened wipe(s) package (10) by
a weld seam (11) or a separate weld seam and the exothermic reagent (22) resides near the
bottom of said envelope space at the opposite end. Said reagent (22) may not be affixed and take
the form of a liquid, gel, powder, absorbing envelope or pad. Said absorbent envelope (21) may
be affixed by one or more weld seams to the outside of the pre-moistened wipe(s) package (13)
or to the inside of the outer package (10). When said solvent bag (20) is pressed or squeezed,
thereby ruptured (preferably along bottom weld seam), said package (10) is held upright
temporarily to allow the solvent to seep down into the reagent below thereby triggering the
exothermic reaction. This specific arrangement of said solvent bag (20) and reagent (22) utilizes
gravity to maximize contact between the two chemicals, thereby increasing the efficacy of the
exothermic chemical reaction and also reducing manufacturing costs.

FIG. 2 and FIG. 2A are perspective drawings of a self-heated pre-moistened wipe(s)
package embodying all of the elements previously stated for FIG. 1 and FIG. 1A with a slight
variation in the heating elements (25). Shown in FIG. 2 is the preferred trigger mechanism
utilizing a pulling device. Said solvent bag (20) of FIG. 2 is formed from a liquid impermeable
plastic sheet material folded together. The folded edge forms the bottom of the solvent chambers
(20). Liquid-tight weld seams (24) are made around the sides and top to form the solvent bag
(20). The solvent is contained within the volume enclosed by the weld seams (24). Said solvent
bag may or may not fit snugly in the envelope space formed between the inside of the thermal
insulated layer (12) and outside of the inner pre-moistened wipe(s) package (13). Said solvent
bag is attached to the inside of the thermal insulated layer (12) by weld seams or by some other
means. Said solvent chamber (20) contains manufactured holes or pores (27) facing absorbent
envelope (21) containing chemical reagent (22). An adhesive flap (26), covers the porous
openings (27), in order to contain said solvent within said solvent bag (20). A pull string (41)
enters the outer package (10) through a small hole (43). Said pull string hole (43) is sufficiently small as to minimize heat loss during use of the device. Said pull string (41) extends down the length of the bladder/chamber (20) and loops around the loop hole (40) of the adhesive flap (26). The other end of the pull string (41) exits the small hole (43) and is attached to a fastener (44). Upon pulling said pull string (41), the adhesive flap (26) peels off the solvent chamber (20) exposing said porous openings (27) thereby releasing the solvent and triggering the exothermic reaction. In order to increase the mechanical efficiency of the triggering mechanism, an extended lower lip (61) is incorporated into the design of the outer package (10). Said lower lip (61) is formed by extending the lower folded portion of the outer package (10) beyond the weld seams (60). Said lower lip (61) provides a surface that could be held between fingers, to pull against the pulling action of the string (41) when the exothermic reaction is triggered. To improve the mechanical action of said triggering mechanism, increasing the rigidity of the device through packaging or some other means is beneficial. A chemical reagent (22) in the form of a pad is recommended for increased rigidity.

FIG. 2A depicts all of the embodiments described by FIG. 1 and FIG. 2 with the exception of the trigger mechanism which has a slight variation.

Shown in FIG. 2A is the solvent bag (20) formed from a liquid impermeable plastic sheet material folded together. The folded edge forms the bottom of the solvent bag (20). Liquid tight weld seams (23) are formed around the sides and top to form the solvent chamber (20). Two liquid tight weld seams (62) are made across the top and bottom of the bag at a distance away from the edges to form an upper and lower lip (63). Said solvent is contained within this space. The two lips (63) that are formed are affixed to the inside of the thermal insulated layer (12) by fasteners (64) such as staples or some other means. A pull string (41) enters through the outer
package (10) via a small hole/opening (43), small enough to minimize heat loss when triggered. The string (41) extends down the solvent chamber (20) in the space between the solvent bag (20) and the inner pre-moistened wipe(s) package (13). Said pull string (41) further extends around one end of the solvent bag through a rip hole or loop hole (40) cut into the lower lip (63). Said pull string (41) then traverses back up along the backside of the solvent bag (20) between the solvent bag (20) and the inside of the thermal insulated layer (12). It is then fastened to the combination sheet layer comprising the outer package (10) and the thermal insulated layer (12) by some fastener (42) such as a staple or some other means. The other end of the pull string (41) protruding from the small hole (43) outside the outer package (10), is attached to a pull-tab (44).

When the pull string (41) is activated, it facilitates a tear starting at the loophole (40) continuing down the center of the solvent bag (20) releasing said solvent, triggering the exothermic reaction. To maximize the efficacy of said triggering mechanism, rigidity of the device is of utmost importance. Rigidity of packaging should be taken into consideration by the manufacturer. In addition, an exothermic reagent (22) in the form of a pad is preferred to increase rigidity. In addition, when designing the outer package (10), a lower lip (61) extends beyond the weld seams (60) some distance to provide a grip to be held between fingers to counteract the pulling action of the pull string (41) and maximize the tearing action of said trigger mechanism.
WE CLAIM:

1. A package for storing and heating a product, said package comprising:

   a first sealable envelope comprising a region located inside said first sealable envelope,
   said region containing a first agent;

   a sealed bag located inside said first sealable envelope and containing a second agent,
   said sealed bag capable of being breached at a section allowing said second agent
   to react with said first agent generating heat within a heating region; and

   a second sealable envelope comprising a region for containing said product, a portion of
   said second sealable envelope being located within said heating region, said heat
   from said reaction heating said product located in said heating region;

   wherein

   said first sealable envelope is compressible about said section of said sealed bag; and

   contents of said first sealable envelope about said section of said sealed bag are flexible.

2. The package for storing and heating a product as claimed in claim 1, wherein said region
   of said second sealable envelope for containing said product is located substantially within said
   heating region.

3. The package for storing and heating a product as claimed in claim 2, wherein said
   product is a pre-moistened wipe.

4. The package for storing and heating a product as claimed in claim 3, further comprising a
   first agent bag located inside said first sealable envelope, said first agent bag containing said first
   agent.
5. The package for storing and heating a product as claimed in claim 4, wherein said second agent is a solvent.

6. The package for storing and heating a product as claimed in claim 5, wherein said first agent bag is permeable and said first agent comprises a powder.

7. The package for storing and heating a product as claimed in claim 5, wherein said first agent bag contains said solvent bag and said first agent comprises a gel.

8. The package for storing and heating a product as claimed in claim 5, wherein said sealed bag has a size and shape allowing said sealed bag to fit snugly inside said first sealable envelope.

9. The package for storing and heating a product as claimed in claim 7, wherein said first agent bag has a size and shape allowing said first agent bag to fit snugly inside said first sealable envelope.

10. The package for storing and heating a product as claimed in claim 9, wherein said sealed bag comprises at least one sealed chamber containing said second agent, said at least one sealed chamber capable of being independently breached.

11. The package for storing and heating a product as claimed in claim 10, wherein said at least one sealed chamber comprises a plurality of chambers.

12. A package for storing and heating a product, said package comprising:

   a first sealable envelope comprising a region located inside said first sealable envelope, said region containing a first agent;
a sealed bag located inside said first sealable envelope, said sealed bag including at least one sealed chamber containing a second agent, each chamber of said at least one sealed chamber capable of being independently breached at a section allowing said second agent to react with said first agent generating heat within a heating region; and

a second sealable envelope comprising a region for containing said product, a portion of said second sealable envelope being located within said heating region, said heat from said reaction heating said product located in said heating region;

wherein

said first sealable envelope is compressible about each said section of said each chamber of said at least one sealed chamber.

13. The package for storing and heating a product as claimed in claim 12, wherein said product is a pre-moistened wipe.

14. The package for storing and heating a product as claimed in claim 13, further comprising a first agent bag located inside said first sealable envelope, said first agent bag containing said first agent.

15. The package for storing and heating a product as claimed in claim 14, wherein said sealed bag has a size and shape allowing said sealed bag to fit snugly inside said first sealable envelope.

16. The package for storing and heating a product as claimed in claim 15, wherein said first agent bag has a size and shape allowing said first agent bag to fit snugly inside said first sealable envelope.
17. A package for storing and heating a product, said package comprising:
   a first sealable envelope comprising a first region and a second region located inside said
   first sealable envelope, said first region containing a first agent;
   a sealed bag located inside said first sealable envelope in said second region of said first
   sealable envelope, said sealed bag containing a second agent, said sealed bag
   capable of being breached at a section allowing said second agent to flow from
   said sealed bag to react with said first agent generating heat within a heating
   region; and
   a second sealable envelope comprising a region for containing said product, a portion of
   said second sealable envelope being located within said heating region, said heat
   from said reaction heating said product located in said heating region;

   wherein
   said first sealable envelope is compressible about said section of said sealed bag;
   contents of said first sealable envelope about said section of said sealed bag are flexible; and
   said sealed bag is located about said second region and said first agent is located about said first
   region enabling gravity to assist flow of said second agent towards said first agent when said
   sheet material is breached.

18. The package for storing and heating a product as claimed in claim 17, wherein said
    region of said second sealable envelope for containing said product is located substantially
    within said heating region.

19. The package for storing and heating a product as claimed in claim 18, wherein said
    product is a pre-moistened wipe.
10 - OUTER PACKAGE
11 - WELD SEAMS
12 - THERMAL INSULATED LAYER
13 - INNER PRE-MOISTENED WIPE(S) PACKAGE
14 - WELD SEAMS
20 - SOLVENT CHAMBER
21 - ABSORBING ENVELOPE
22 - EXOTHERMIC REAGENT
23 - WELD SEAMS
24 - WELD SEAMS
25 - HEATING ELEMENTS
30 - INNER PACKAGE OPENING
31 - WELD SEAMS/ADHESIVE STRIPS
32 - TEAR STRIP