(54) Title: DEVICE AND METHOD FOR APPLYING A COSMETIC PRODUCT

(57) Abstract: One subject of the invention is a device for packaging and applying a product, comprising: a main body defining a housing suitable for containing the product; a heating element fixed to the main body; and a means for moving the product towards the heating element. According to the invention, the device includes at least two dispensing orifices, the heating element being placed at least partly around these dispensing orifices in such a way that the product can be heated when being dispensed.

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Device and method for applying a cosmetic product

The present invention relates to a device and a method for applying a cosmetic product on human keratin, preferably non-fibrous, materials, especially the skin or the lips.

The invention relates more particularly to a device and a method for applying a product packaged in liquid, solid or viscous form and applied hot in a fluid or viscous form.


Lipsticks have been packaged for a long time in solid stick form for direct application on lips. Packaging in solid form is in particular easier to implement.

In this case, the formulation of the lipstick must meet, on the one hand, mechanical requirements, so as to ensure that the stick has good slidability and hold properties when applied and to prevent it from breaking, and, on the other hand, transfer requirements in order to guarantee comfortable application and sufficient high-quality deposition on the lips.

These requirements are generally considered to be conflicting and lead to formulation constraints that it would be desirable to be able to mitigate.

Moreover, users may desire the applied product to be glossy. Although it is relatively easy to supply gloss in liquid formulations, it is much more difficult to do so in a product in the form of a solid mass. There is thus a need to provide more gloss in particular for lipsticks in stick form.

Finally, the sensorial aspect is very important for products packaged in stick form since, upon application, the user is in direct contact, or in indirect contact via an applicator, with the product which has to be pleasant to apply and in particular has to be of uniform texture.

Patent application FR2927782 discloses a device for packaging and applying a product in the form of a solid piece, which includes a heater coming into contact with part of the surface of the product in order to heat said piece locally. However, such heaters are unable to heat the entire surface of the end of the stick uniformly.

Patent application US2004/0096258 discloses a device for packaging and applying a lipstick, which includes a vibration generator and a heat generator. The
vibration generator serves to apply a massaging action with a hot surface, independently of the application of the lipstick. The heat generator comprises a resistance wire that extends along the internal surface of a metal cap. The latter is attached underneath to a lipstick mechanism. However, the resistance wire extends over practically all of the height of the cap. The latter is thus heated in its entirety and the energy consumption is relatively high.

Patent application EP1595472 discloses a device for reshaping the application surface of a product contained in a body, comprising an electrical resistor. All of the product is heated so as to be able to flow under gravity in the reshaping mould. The product then solidifies, on cooling, and is applied as a solid at room temperature.

Patent application US2008/0143214 describes a packaging device that includes a product in stick form, for example a depilatory composition or a lipstick, held in a housing that includes a coil and a magnet that can move relative to the coil in order to induce an electric current. The electric current may serve to heat the end of the stick using a heating element placed around the closure cap of the device.

With such a device, the entire cap is heated and radiates towards the surface of the product. The energy consumption is relatively high and it may prove to be tricky to control the heating of the product, especially because the cap has to be placed over the housing in order to receive the electrical energy generated by the housing.

There is therefore a need to improve the performance of a product applied hot and packaged in liquid, solid or viscous form, from the sensorial standpoint and/or from the make-up results standpoint, while ensuring that the properties of the product remain compatible with its packaging.

The aim of the invention is to meet all or some of these needs.

The products concerned by the invention are not limited to make-up products, the invention also relating to care products.

One subject of the invention is a device for packaging and applying a product, comprising:

- a main body defining a housing suitable for containing the product;
- a heating element fixed to the main body; and
a means for moving the product towards the heating element, this means being able to be actuated manually by the user in order for he or she to check the amount of product that it is desired to apply,

which device includes at least two dispensing orifices, the heating element being placed at least partly around these dispensing orifices in such a way that the product can be heated when being dispensed.

The expression "at least partly around these dispensing orifices" should be understood to mean that the heating element enables the walls of the orifices to be heated and that it can therefore be positioned, for example, close to but away from these orifices or in these orifices by being positioned against the wall of these orifices.

The heating element may comprise an electrical resistor.

The heating element may comprise a heated grid.

The product may be packaged in solid or viscous form and by heating the surface of the end of the product said end may be softened so as to be able to pass through the dispensing orifices.

The expression "product in solid form" is understood to mean any composition incapable of flowing under the action of a dispensing means exerting a thrust on this product and unable to be expelled through the dispensing orifices.

Furthermore, the expression "a product in liquid or viscous form" is understood to mean any composition capable of being expelled, whether easily or not, through the dispensing orifices.

The term "pasty" occasionally used in this description is synonymous with "viscous".

The orifices may be formed through an end-piece partially defining the housing.

The heating element may be an integral part of this end-piece.

The heating element may be this end-piece.

The end-piece may be covered with a porous applicator, especially a foam, a woven fabric, a felt, an elastomer or a non-woven fabric, or else may be flocked.

Another subject of the invention is a method for the cosmetic treatment of human keratin, preferably non-fibrous, materials, especially including the skin or the
lips for example, and especially a make-up treatment, comprising the steps consisting in:
- bringing the product against a heating element of a main body of a device as described above;
- moving the product so as to dispense it through the dispensing orifices; and
- applying the resulting heated product on a region to be treated, especially the skin or the lips.

The product may be a product to be applied on the lips, for example of solid, viscous or liquid consistency, such as a lipstick in stick form or a liquid lip product.

The heating element may be brought to a temperature equal to or above 40°C or above 45°C or even above 50°C.

The invention, by localized heating of the product portion facing the heating element, may allow a product to be applied while obtaining better results than those obtained without heating the product.

By raising the temperature of the product on the external surface, preferably at one end of the product, especially when this is in stick form, certain constituents of the product may be rendered more easily compatible, resulting for example in better hold and/or gloss.

The invention thus offers novel formulation and/or packaging options.

The invention may be better understood on reading the following detailed description of non-limiting exemplary embodiments thereof and by examining the appended drawing in which:
- Figure 1 shows schematically a device for applying a cosmetic product according to the invention;
- Figure 2 shows a longitudinal sectional view of an alternative embodiment of the device of Figure 1;
- Figures 3 to 6 show embodiments of heating elements for the device according to the invention;
- Figures 4bis and 5bis are cross-sectional views of Figures 4 and 5 along the axes IV-IV and V-V respectively;
- Figure 7 shows a longitudinal sectional portion of an alternative embodiment of the device of the invention; and

- Figure 8 shows a sectional view of an alternative embodiment of the device of Figure 1.

Figure 1 shows an example of a device 1 for applying a cosmetic product according to the invention.

The packaging and application device 1 comprises a base part 2, which supports a product mass in the form of a stick S of product, and a cap 3 which can be fitted onto the base part 2 in order to close the device 1 when not being used.

The stick S, which is for example a cylindrical stick of lipstick, may have a cross section between 0.1 and 5 cm², or between 0.15 and 1 cm².

Preferably, the cosmetic product S has a formulation solid at room temperature (20°C) which becomes viscous or even liquid at a temperature, for example, above 30°C, or above 40°C.

In the context of the present invention, the term "solid" is understood to mean a composition or a product having, at 20°C and at atmospheric pressure (760 mmHg), a hardness of more than 30 N m⁻¹, preferably more than 40 N m⁻¹.

According to one preferred embodiment, the solid product employed in the device according to the invention is in the form of a stick. When the product is in stick form, the external surface may be defined as the end of said stick, i.e. the free end which is applied on keratin materials, especially the skin or the lips, by the user.

According to one particular embodiment, the method employed in the device according to the present invention is such that the product is in stick form, especially with a diameter equal to or greater than 7 mm.

According to yet another embodiment, the method employed in the device according to the present invention is such that the product is a lipstick. According to one embodiment, the compositions considered in the invention are relatively hard at room temperature and, through the action of the device, become sufficiently soft so as to be applicable.

The hardness may be measured at 20°C by what is called the "butter cutting wire" method, which consists in cutting a stick of product, preferably a cylinder of revolution, transversely using a rigid tungsten wire 250 µm in diameter.
by moving the wire relative to the stick at a rate of 100 mm/min. The hardness corresponds to the maximum shear force exerted by the wire on the stick at 20°C, this force being measured by means of a DFGHS 2 tensile testing machine from the company Indelco-Chatillon. The measurement is repeated three times and then averaged.

The average of the three values recorded by means of the tensile testing machine mentioned above, denoted by Y, is given in grams. This average is converted to newtons and then divided by L, which represents the longest length through which the wire passes. In the case of a cylindrical stick, L is equal to the diameter in metres.

The hardness is converted by the equation below:

\[ Y \times 10^3 \times 9.8 / L. \]

For a measurement at a different temperature, the entire stick is heated to the temperature at which the hardness has to be measured.

According to this measurement method, the hardness at 20°C of examples of the composition (also called the "product") according to the invention is preferably greater than 30 Nm⁻¹, preferably greater than 50 Nm⁻¹, in particular 80 Nm⁻¹, especially greater than 100 Nm⁻¹, and preferably greater than 120 Nm⁻¹.

Preferably, the composition according to the invention has in particular a hardness at 20°C of less than 500 Nm⁻¹, especially less than 400 Nm⁻¹ and preferably less than 300 Nm⁻¹. The compositions or products that can be employed in the device according to the invention may advantageously be characterized by a viscoelastic behaviour (which depends on the temperature of the composition). In general, a material is said to be viscoelastic when, under the effect of shear, it has both the characteristics of a purely elastic material, i.e. capable of storing energy, and the characteristics of a purely viscous material, i.e. capable of dissipating energy.

More particularly, the viscoelastic behaviour of a composition may be characterized by its elastic modulus \( G' \) (also called storage modulus), and its viscous modulus \( G'' \) (also called loss modulus). These parameters are defined for example in the publication "Initiation à la rheologie [Introduction to Rheology]", G. Couarraze and J.L. Grossiord, 2nd edition, 1991, published by Lavoisier-Tec 1 Doc.

These parameters are determined by measurements carried out at a temperature controlled by a Peltier device (20°C ± 0.1°C or 50°C ± 0.1°C), using an
AR-G2 controlled-stress rheometer from the company TA Instruments, equipped with a titanium rotor with plate/plate geometry, the plates having a diameter of 20 mm with a gap (distance between the lower plate, on which the composition is deposited, and the upper plate) of 0.5 mm. The two plates are sandblasted in order to limit any slippage at the walls of the plates.

The dynamic measurements are carried out by applying a harmonic variation of the stress. In these experiments, the shear, the shear rate and the stress are low so as to remain within the limits of the linear viscoelastic range of the material (the conditions enabling the rheological characteristics of the composition to be evaluated at rest).

The linear viscoelastic range is generally defined by the fact that the response of the material (i.e. the strain) is at any moment directly proportional to the applied force (i.e. the stress). In this range, the applied stresses are low and the material is subjected to strains without its microscopic structure being modified. Under these conditions, the material is studied "at rest" and non-destructively.

A composition is subjected to a harmonic shear according to a stress \( x(t) \) that varies sinusoidally according to an angular frequency \( \omega \) \( (\omega = 2\pi v, \nu \) being the frequency of the applied shear). The composition thus sheared is subjected to a stress \( x(t) \) and responds according to a strain \( \gamma(t) \) corresponding to microstrains for which the moduli vary little as a function of the stress imposed.

The stress \( x(t) \) and the strain \( \gamma(t) \) are defined respectively by the following equations:

\[
x(t) = \tau_0 \cos(\omega \cdot t) \quad \text{and} \quad \gamma(t) = \gamma_0 \cos(\omega \cdot t - \delta)
\]

\( \tau_0 \) being the maximum amplitude of the stress and \( \gamma_0 \) being the maximum amplitude of the strain. The phase angle between the stress and the strain is \( \delta \).

The measurements are performed at a frequency of 1 Hz \( (\nu = 1 \text{ Hz}) \). The variation of the elastic modulus \( G' \) and the viscous modulus \( G'' \) are thus measured as a function of the applied stress \( \tau(t) \) (the stress \( \tau_0 \) varying from 0.1 Pa to 1000 Pa).
In particular, the strain of the composition is measured for the stress region in which the variation in the elastic modulus \( G' \) is less than 7\% (microstrain region) and the "plateau" parameters \( G_p' \) and \( G_p'' \) are thus determined. The critical stress \( \tau_{G'\rightarrow G''} \) corresponds to the value of the stress for which \( G'(\tau_{G'\rightarrow G''})=G''(\tau_{G'\rightarrow G''}) \).

The viscoelastic behaviour of a composition depends on its temperature. In particular, its behaviour and in particular the "elastic modulus" and "critical stress" parameters at a temperature of 20°C, which corresponds to room temperature, and at a temperature of 50°C, which may in particular be the temperature of the composition on leaving the device, after it has been heated, may be considered.

According to a preferred embodiment, a composition that can be employed in the device and the method according to the invention advantageously has, at 20°C, an elastic modulus \( G' \) and a viscous modulus \( G'' \) that are both between 100 Pa and \( 10^8 \) Pa. Preferably, the critical stress at 20°C is between 1 and 1000 Pa.

According to a preferred embodiment, a composition that can be employed in the device and the method according to the invention advantageously has, at 50°C (which may especially correspond to the temperature of the composition on leaving the device, after it has been heated), an elastic modulus \( G' \) and a viscous modulus \( G'' \), both being between 10 Pa and \( 10^4 \) Pa. Preferably, the critical stress at 50°C is between 0.1 and 100 Pa.

It is also conceivable to use a viscous or even fluid formulation, the physical properties of which change with an increase in their temperature before application.

The composition of the product S is for example one of the cosmetic compositions described in the patent applications WO20 10/0 10303, WO20 10/0 10306, WO20 10/0 10301, FR2927782 and FR2934 129.

As an example, the composition of the product S may advantageously be the following:
The hardness of this composition, measured according to the protocol described above, is 110 Nm\(^{-1}\).

The viscoelastic characteristics of the above composition, measured at 20°C using the method described above, are the following:

Elastic modulus \(G' = 27 \times 10^3\) Pa; viscous modulus \(G'' = 20 \times 10^3\) Pa and critical stress \(\tau_{G''} = 180\) Pa.

At 50°C (which is advantageously the temperature of the composition on leaving the device), the elastic modulus \(G'\) is about 1000 Pa, the viscous modulus \(G''\) is about 900 Pa, and the critical stress \(\tau_{G''}\) is about 2 Pa.

The base part 2 may be of any known type enabling the product S to be moved progressively as it is consumed.
In the example illustrated in Figures 1 and 2, the base part 2 comprises a basically cylindrical main body 5 extending along a longitudinal axis X, and a rotary knurled wheel 6 positioned at one end of the main body 5 and able to rotate relative to said main body 5 about the axis X.

The open end of the main body 5, on the opposite side from the knurled wheel 6, comprises an applicator end-piece 8 having orifices 16 for dispensing the product S.

The rotation of the knurled wheel 6 relative to the main body 5 drives a mechanism for converting the relative rotation of the two elements 5 and 6 into a displacement along the longitudinal axis X of the stick S.

To achieve this, the stick S is for example carried, within this mechanism, by a cup 51 having lugs 52 that are engaged in first and second parts connected to the main body 5 and to the knurled wheel 6 respectively. The first part 53 forms a sleeve fitted into the main body 5 and having helical grooves 54 in its internal face. The second part 61 forms a sleeve having longitudinal rectilinear slots 62.

The lugs 52 of the cup 51 are engaged in the helical grooves 54 passing through the slots 62 of the second part which is intercalated between first part 53 and the cup 51 in such a way that a relative rotation of the first part 53 with respect to the second part 61 is accompanied by a longitudinal movement of the cup 51 and therefore of the stick S.

Other types of mechanisms for moving the product may of course be suitable such as, for example, the mechanisms described in the publications US 6 340 258, US 6 086 276, US 6 371 673, US 5 171 096 or US 7 293 926.

Thus, a variant of the dispensing device has been shown in Figure 8. Referring to this Figure 8, a device 101 for dispensing a product S of liquid, pasty or solid consistency, such as a lipstick composition, comprises a reservoir 105 of cylindrical general shape containing the product S. The reservoir 105 has in its upper portion an application end-piece 108.

This end-piece 108 has an application surface that includes a multitude of dispensing orifices 116 that interconnect with the reservoir 105.

The end-piece 108 includes an internal annular groove cooperating with an annular fastening bead of the reservoir 105 in order to keep the end-piece in place on
the reservoir. Other fastening means may be used to ensure that the end-piece is kept in place on the reservoir.

The reservoir 105 has a circular bottom 150 provided with a central hole through which a threaded control rod 163 passes. A piston 151 having an internally threaded passage is mounted on the threaded rod 163, this piston being capable of sliding translationally inside a reservoir 105 under the action of the rotation of the control rod 163 so as to expel the product S. The rod 163 is actuated by a knurled control wheel 106 mounted so as to rotate freely on a cylindrical skirt carried by the bottom 150. The knurled wheel 106 has a central duct of cylindrical shape in which a free end of the rod 163 is fixed. The knurled wheel 106 furthermore includes a cylindrical skirt surrounding the skirt carried by the bottom 150. The skirts are provided with a snap-fastening system formed by an annular rib/annular bead pair cooperating with each other so that the knurled wheel 106 remains rotationally free.

According to the invention, the end-piece (8, 108) includes an electrical heating element 10 that allows that portion of the product in contact with the heating element to be heated prior to the product being applied on the keratin materials, for example the skin or the lips.

For example, the heating element may heat a portion of the product over less than 5 mm in depth.

The heating element 10 is connected to an electrical power supply source 12 housed for example in the main body 5 which may for example include a housing 55 fitted onto its peripheral surface as shown in Figure 1. The power supply 12 consists for example of one or more cells or batteries.

The end-piece (8, 108) and the heating element 10 are placed so as to raise the temperature of the entire portion of product S that comes into contact with the heating element by virtue of the mechanism for moving the product.

The surface of the heating end-piece (8, 108) may have any shape suitable for applying the product, for example a bevel shape substantially complementary to the shape of the end 11 of the stick S, as illustrated in Figure 1, a flat shape perpendicular to the axis X, as in Figure 2, a shape which is concave or convex towards the product S, especially a spherical cap shape, or a conical or a frustoconical shape.
When the product $S$ is in solid form, the geometry of the end 11 of the stick of product $S$ may then be matched to the shape of the surface of the heating element 10.

The heating end-piece (8, 108) includes orifices (16, 116) through which the product $S$, which has softened and therefore become viscous or fluid under the effect of the heat, can pass, whereas it would be difficult or impossible for it to do so in solid or pasty form.

The number of orifices may be between 2 and 100 and their cross section may be less than 5 mm$^2$ or less than 2 mm$^2$ or even less than 1 mm$^2$.

The heating element 10 may form the surface of the end-piece taking the form of a resistive grid as shown in Figure 3. For example, this grid consists of a resistance wire 9 interlaced so as to form the grid.

The resistance wire 9 is for example made of a non-magnetic nickel-chromium alloy, also called Nichrome®, or a copper-nickel metal alloy, also called Constantan®, or an oxygen-chromium-aluminium alloy or an iron-chromium-aluminium alloy, but the invention is not limited to a precise example of a material for producing the resistance element. As an example, it is possible to use a 1.5 V cylindrical cell electrically connected so as to supply a total resistance wire length of 16 cm, preferably with a diameter equal to 0.5 mm, so as to have a current of 400 mA and a temperature of about 60°C.

Of course, other types of heating end-pieces may be used; for example, the heating end-piece may also be formed from a metal or plastic end-piece 8 that includes orifices 16 through which a resistance wire 9 passes, so as to snake through on either side of the surface of the end-piece, as shown in Figure 4.

The heating end-piece may also be formed from a metal or plastic end-piece 8 having orifices 16 and overmoulded onto an electrical resistor 9 along a sinuous line in the end-piece so as to partially surround the dispensing orifices, as shown in Figure 5.

In a variant shown in Figure 6, the heating end-piece may also be formed from a metal end-piece inductively heated using a coil 19 placed around the end-piece. The metal end-piece may also be heated conductively, a resistance wire being placed in contact with the periphery thereof.
The raising of the temperature by the heating element may for example be indicated by a warning lamp 15, which may for example pass from a continuously lit state, indicating that the device is operating, to a flashing state or may change colour when the temperature is reached.

Once that portion of the product in contact with the heating end-piece has been sufficiently heated, a portion of the product is passed through the heating end-piece 10 by the product being raised using the knurled wheel manually activated by the user in order to apply the product to the lips.

The product remains softened after passing through the heating end-piece since the product remains in contact with or is sufficiently close to this heating end-piece. This viscous or fluid state of the product ensures comfortable and uniform application and good transfer to the lips with a thick and possibly glossy deposit upon application.

To obtain even more comfortable application, the device 1 may include a porous applicator 17 made of foam or a woven fabric placed above the heating element, as shown in Figure 7. Likewise, the heating element 10 may be covered with flocking 18, as shown in Figure 2, or include a flocked cover or may have a textured surface appearance making application easier. Other kinds of applicators may also be envisaged, such as for example brushes.

This device makes it possible for the packaged product, other than the portion in contact with the heating end-piece, to remain at room temperature or at a temperature that is slightly higher but insufficient to compromise the physical and chemical properties of the product, especially the mechanical strength necessary for withstanding the mechanical forces generated by the pressure of the mechanism for expelling the fluidized end of the product, and also enables better preservation of the product over the course of time.

The device also prevents application of product that has not been able to pass through the heating member until it has reached the correct temperature for application, i.e. is sufficiently softened to pass through the orifices.

The device also makes it possible to save energy stored in the electrical power supply source by heating only the amount of product necessary for example for applying it to the lips or skin.
The device 1 may be used in a similar manner for making up the skin, the stick then being able to have a larger cross section, where appropriate.

The heating device 10 may also include, where appropriate, a timer that allows the end 11 of the stick S to be heated only for a predefined time, so as to prevent the electrical power supply source from being prematurely exhausted and/or to avoid raising the entire stick to an excessively high temperature.

The heating device 10 may advantageously include any suitable means for triggering the operation of the heater only when there is effective contact between the heating surface and the end 11 of the stick S.

For example, the heating device 10 may include a pressure sensor for detecting contact between the heating surface and the stick S, permitting heating only when there is proven contact with the stick S.

The heating device 10 may also be defined for example by a contact part, for example one which can move axially along the axis X relative to the body 5 against the action of an elastic return member 20 and coming into contact with the electrical circuit under the thrust force of the stick S, thus enabling it to be heated as shown in Figure 7.

As shown in Figure 1, the heating device may also include a switch 13 making it possible for the heating device 10 connected to the electrical power supply by conductors 14 to be turned on or off by the user.

The heating device may optionally include any means for regulating the temperature of the heating member 10 so that it does not exceed a predefined value, for example by using a temperature sensor connected to an electronic circuit for regulating the temperature (the circuit not being shown in the figures).

A method of using this device for cosmetic treatment will now be described.

This method comprises the following steps, consisting in:

a) moving the product S up to the heating element 10;
b) heating the product S by the heating element;
c) moving the product S so as to dispense it through the dispensing orifices (16, 116); and
d) applying the product thus heated to a region to be treated, especially on human, preferably non-fibrous, keratin materials, especially such as the skin or lips.

What is obtained after application on the lips is an intense and glossy deposit of product, with a pleasant sensation of sliding and warmth upon application.

Of course, the invention is not limited to the examples that have been illustrated, in particular the invention is not limited to a lipstick or to a make-up or care product for application to the skin or lips.

The expression "comprising a" or "including a" must be understood as being synonymous with "comprising at least one" or "including at least one", unless specified otherwise.
1. Device (1) for packaging and applying a cosmetic product (S), comprising:
   - a main body (5) defining a housing suitable for containing the product;
   - a heating element (9) fixed to the main body; and
   - a means for moving the product towards the heating element, this means being able to be actuated manually by the user,

   which device is characterized in that it includes at least two dispensing orifices (16), the heating element being placed at least partly around these dispensing orifices in such a way that the product can be heated when being dispensed.

2. Device according to the preceding claim, characterized in that the heating element comprises an electrical resistor.

3. Device according to either of the preceding claims, characterized in that the heating element comprises a heated grid.

4. Device according to one of the preceding claims, characterized in that the product is packaged in solid or pasty form and in that by heating the surface at the end of the product it is possible to soften said end.

5. Device according to one of the preceding claims, characterized in that the orifices are formed through an end-piece partially defining the housing.

6. Device according to the preceding claim, characterized in that the heating element is an integral part of this end-piece.

7. Device according to Claim 5, characterized in that the heating element is this end-piece.
8. Device according to the preceding claim, characterized in that the end-piece is covered with a porous applicator (17), especially a foam, a woven fabric, a felt, an elastomer or a non-woven fabric, or else is flocked.

9. Method for the cosmetic treatment of human keratin materials, especially a make-up treatment, comprising the steps consisting in:
   - bringing the product against a heating element of a main body of a device according to any one of the preceding claims;
   - moving the product so as to dispense it through the dispensing orifices; and
   - applying the resulting heated product on a region to be treated, especially on human keratin, preferably non-fibrous, materials.

10. Method according to Claim 9, characterized in that the product is a product to be applied on the lips, for example of solid, pasty or liquid consistency, especially a lipstick in stick form or a liquid lipstick.

11. Method according to either of Claims 9 and 10, characterized in that the heating element is brought to a temperature equal to or above 40°C or above 45°C or even above 50°C.
A. CLASSIFICATION OF SUBJECT MATTER
INV. A45D40/00

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)
A45D

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

<table>
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<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>WO 2006/090343 AI (0REAL [FR]; GUERET JEAN-LOUIS [FR]) 31 August 2006 (2006-08-31) abstract; figure 12</td>
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Further documents are listed in the continuation of Box C. X See patent family annex.

* Special categories of cited documents:
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Form PCT/ISA/210 (second sheet) (April 2005)
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