Title: A MAKEUP COMPOSITION

Abstract: The present invention relates to a fluid cosmetic composition comprising, in a cosmetically-acceptable medium, one or more volatile solvents and color-effect particles, the medium being suitable, after forming a deposit of the composition on keratinous materials, for enabling the color effect to develop progressively after application, as a result of the particles rising to the surface of the deposit during evaporation of the volatile solvent(s).
A MAKEUP COMPOSITION

The present invention relates to cosmetic compositions, and more particularly to cosmetic compositions for making-up the skin, the lips, hair, or the nails.

In makeup compositions, it is known to use pigments for creating a color effect by an interference phenomenon.

Diffractive pigments including a diffraction grating making it possible to create a rainbow effect are thus known, a feature of such pigments being to produce a color that depends on the orientation of the pigment relative to the observer.

In known compositions that produce a color effect by an interference phenomenon that depends on the direction of observation, the intensity of the effect is associated with the number of particles that have the same orientation. The roughness of the underlying support surface is a factor that influences the intensity of the effect obtained when the pigment tends to be concentrated at the interface between the composition and the support surface, and thus tends to match the relief of said support surface. A rough surface impedes the particle alignment and affects the intensity of the color effect.

Application WO 2005/055965 discloses nail varnishes and lip glosses including diffraction-grating aluminum particles. For a nail varnish, that publication recommends a volatile solvent content that can be as much as 90% by weight relative to the total weight of the composition. It is suggested to orientate the particles while the composition is being deposited, by means of a mechanical effect associated with using a brush or an applicator ball, for example. According to that publication, an iridescent metallic appearance can be obtained for a lip gloss.

The invention seeks to propose novel cosmetic compositions that make it possible to obtain relatively
intense color effects from color-effect particles in suspension in the composition, e.g. a diffractive pigment, even when the composition is applied in a thin layer on a relatively uneven support surface.

The cosmetic compositions typically comprise a cosmetically-acceptable medium. The term "cosmetically-acceptable medium" means a medium that is not toxic and that is suitable for application to the skin, hair, the nails, or the lips of human beings.

In a first of its aspects, the invention provides a fluid cosmetic composition comprising one or more volatile solvents and color-effect particles dispersed in the solvent(s), the medium being suitable, after forming a deposit of the composition on keratinous materials, for enabling the color effect to develop progressively after application, as a result of the particles migrating to the surface of the deposit and as a result of the particles aligning during evaporation of the volatile solvent(s).

The migration towards the surface can take place in particular under the effect of convection movements within the composition as a result of the solvent(s) evaporating.

In the invention, as a result of the particles rising towards the surface, the concentration of particles in the proximity of the surface of the composition increases after application, and, by means of an interference phenomenon, makes it possible to create a color effect that is relatively intense, even when the support surface on which the composition is applied is relatively uneven, such as the skin or the lips.

In addition, the invention can make the effect obtained less dependent on the kind of applicator that might be used.

The color effect can reach its final intensity relatively quickly, e.g. in less than 5 minutes (min) after application.
The invention can thus be fun to watch as a result of the color effect appearing progressively.

The use of one or more solvents of relatively low boiling point can turn out to be preferable in order to encourage the appearance of convection movements, in particular when the total content by weight of solvent(s) is relatively small.

The composition may advantageously include one or more volatile solvents, in particular organic solvents, having boiling temperatures at atmospheric pressure (760 millimeters of mercury (mm Hg)) that are less than or equal to 150°C, better 105°C, still better 90°C. By way of example, the solvent content may be less than or equal to 20% by weight, better 15%, or 10%. Said content could be selected as a function of the kind of keratinous materials to which the composition is to be applied, e.g. being less than or equal to 8% or 6% so as to make the composition better adapted for application to the skin or the lips.

The volatile solvent(s) could be selected as a function of their compatibility with the other components of the composition, so as to enable the composition to be preserved in stable manner, in particular without the components separating.

The viscosity of the composition may advantageously be greater than or equal to 0.5 pascal-seconds (Pa.s) under shear of 1000 per second (s⁻¹), and that may improve its ability to remain on the skin or the lips.

The viscosity of the composition may also advantageously be less than or equal to 10 Pa.s under shear of 1000 s⁻¹, so as to avoid delaying unduly the particles rising and orientating, and so as to enable them to rise before complete evaporation of the volatile solvent(s).

The viscosity is measured at 25°C, under shear of 1000 s⁻¹, with a rheometer under the following conditions:
Moving: Sanded cone/plane with an aperture angle of 2° and a diameter of 35 millimeters (mm) (sanded C235/2°);

Protocol:

- bringing the sample to a temperature of 25°C for 30 seconds (s);
- flow curve: shear of 0 to 4000 s⁻¹ for 300 s, the distribution being logarithmic.

The composition may optionally be film-forming, e.g. depending on the kind of support surface to be made-up. For a film-forming composition, care should be taken to ensure that the film does not form at a rate that prevents the color-effect particles from migrating towards the surface. The composition need not have a film-forming agent such as nitrocellulose, for example.

The composition need not have coloring agent other than the color-effect particles. In a variant, the composition may include at least one coloring agent other than the particles, e.g. a colorant or a pigment, which may possibly be an interference colorant or pigment.

The presence, within the composition, firstly of the color-effect particles, and secondly of another coloring agent, in particular an interference pigment, may make it possible to "mask" the color of the color-effect particles when the lighting level is low.

When the lighting level becomes more intense and providing the color-effect particles migrate correctly, the color effect is added to the color of the other coloring agent. The makes it possible to produce a composition having additional appeal in strong light.

The quantity of the other coloring agent introduced into the composition may be associated with the grain size of said other coloring agent, and may be selected in such a manner as to avoid impeding migration of the color-effect particles. When the other coloring agent is an interference pigment, the size of the interference pigment may thus be less than or equal to 80 micrometers
(μm), and greater than or equal to 40 μm, for example. The term "size" means the average grain size distribution at half the population, also referred to as D_{50}.

The composition need not have solid bodies other than the particles arranged so as produce the color effect and the other possible coloring agent(s). This may contribute to the transparency of the medium containing the color-effect particles and the other coloring agent(s). This transparency makes it possible to avoid masking the light reflected via the color-effect particles, and to avoid unduly attenuating said color effect.

By way of example, the content within the composition of solid bodies, other than the color-effect particles, may be less than or equal to 15% by weight, better 5%.

The composition may be for applying to the skin, the lips, the nails, or the hair.

The composition may be applied directly to keratinous materials or as a top coat on a base coat, which may be colored.

In one of its aspects, the invention also provides a fluid cosmetic composition comprising:

· at least one oil, in particular one or more hydrocarbon-containing oils, the total content of oily fat in the composition being greater than or equal to 50% by weight, for example, in particular greater than or equal to 85%;

· one or more volatile organic solvents having a boiling temperature (at P_{atm}) that is less than or equal to 150°C, better 105°C, still better less than or equal to 90°C, and being of a total content that is less than or equal to 20% or 15% by weight, better 10%; and

· color-effect particles, in particular a diffractive pigment, being of a content that is less than or equal to 10% by weight, better 2%, still better 0.5%. 
The total content of solid bodies in such a composition is advantageously less than or equal to 15% by weight, better 5%, relative to the weight of the composition.

The viscosity of such a composition preferably lies in the range 0.5 Pa.s to 10 Pa.s at 25°C under shear of 1000 s⁻¹.

In another of its aspects, the invention also provides a cosmetic composition comprising:

- a cosmetically-acceptable medium having viscosity lying in the range 0.5 Pa.s to 10 Pa.s at 25°C under shear of 1000 s⁻¹, and comprising:
  - at least one volatile solvent of content lying in the range 1% to 20% by weight, better 3% to 20%, better still 3% to 15%, having a boiling temperature that is less than or equal to 150°C, better 105°C, still better 90°C, and being compatible with the other compound(s) in the medium;
  - at least one liquid compound or mixture of liquid compounds having a boiling temperature that is greater than or equal to the boiling temperature of the volatile solvent(s), in particular greater than or equal to 150°C, the content of the compound or of the mixture of compounds being greater than or equal to 50% by weight; and
  - color-effect particles, in particular diffractive particles made of aluminum, of content that is less than or equal to 10% by weight, better 2%.

Revealing the migration of the particles towards the surface

The rising and the aligning of the color-effect particles after the composition has been applied is shown very diagrammatically in Figure 1.

Rising can take place relatively quickly after application to keratinous materials such as the skin, e.g. in less than 5 min. Beyond this time period, the
color effect may no longer vary substantially to the naked eye.

A plurality of test may be used to reveal the rising phenomenon of the particles.

**Sandpaper test**

A layer having a thickness of about 300 μm is applied in the fluid state to sandpaper, with a thickness that is sufficient to cover the sandpaper completely.

The color effect appears during evaporation of the volatile solvent(s).

Where appropriate, a comparative trial may be performed with a composition having the same color-effect particles, but in which said color-effect particles do not migrate towards the surface. In this event, the color effect is non-existent or less intense because of the roughness of the support surface.

**Dish test**

The composition is poured into a relatively deep dish, e.g. having a depth of 10 mm. The rising of particles is accompanied by the appearance, at the surface, of a color effect that becomes more and more intense. When the dish is transparent, by looking through the side, it is possible to observe a higher concentration of particles in the proximity of the surface.

It would not go beyond the ambit of the present invention if some of the color-effect particles do not migrate, so that only some of them rise and become aligned.

**Color effect**

By way of example, the color effect of intensity that increases with the migration and the alignment of the particles is a color effect that appears only in the presence of a relatively high number of substantially aligned particles, present at the surface of the composition or in its vicinity.
In particular, the color effect may be an effect of splitting up the visible light spectrum, also referred to as a rainbow effect, when the color-effect particles used are particles each including a diffraction grating. Such a color effect may depend very strongly on the orientation of the particles.

The color effect may also be an effect of producing a single color by a thin-layer interference phenomenon, or it may be a metallic reflection effect that is likewise produced by an interference phenomenon.

The color effect may also be a goniochromatic effect associated with a thin-layer interference structure.

Where appropriate, the color effect may depend on ambient light or temperature.

The color effect may be quantified by measuring a color path, where appropriate.

After application to the skin or the lips, the time period necessary for the color effect to appear fully is greater than or equal to 10 s, for example, and less than or equal to 5 min, for example.

Where appropriate, the color effect may appear only under certain lighting conditions, in particular under certain brightness conditions.

**Color-effect particles**

The color-effect particles advantageously present an elongate shape, in particular a platelet shape, so as to be able in particular to adopt a common orientation.

The content of the particles in the composition may be less than or equal to 10% by weight, better 2%, e.g. about 0.5% or less.

As a result of the particles rising, the invention makes it possible to increase the concentration of the particles where their presence is useful, thereby making it possible to have a relatively low concentration in the composition.

The particles may be configured so as to produce a color effect by an interference phenomenon, and they may
be diffractive particles each including at least one
diffraction grating.

The grating may be present on opposite main faces of
the particles.

The particles may also include a multilayer
interference structure that may be symmetrical.

The diffraction gratings of the particles may
comprise a periodic pattern, in particular a line, with
the distance between two adjacent patterns being the same
as the wavelength of the incident light.

When the incident light is polychromatic, the
diffraction grating separates the various spectral
components of the light and produces a rainbow effect.

With regard to the structure of diffractive
particles, reference can usefully be made to the article
"Pigments Exhibiting Diffractive Effects" by Alberto
Argoitia and Matt Witzman, 2002, Society of Vacuum
Coaters, 45th Annual Technical Conference Proceedings
2002.

The diffractive grating may be made with patterns
having various profiles, in particular triangular,
optionally symmetrical, notched, of optionally constant
width, or sinusoidal.

The spatial frequency of the grating and the depth
of the patterns are selected as a function of the degree
of separation of the various desired orders. The
frequency may be in the range 500 lines per mm to 3000
lines per mm, for example.

A single particle may include two crossed
diffraction gratings that are optionally perpendicular.

The particles having diffraction grating may present
a multilayer structure comprising a layer of reflective
material that is covered on at least one side by a layer
of dielectric material. The dielectric material may make
the diffractive pigment stiffer and longer lasting. For
example, the dielectric material may thus be selected
from the following materials: MgF₂, SiO₂, Al₂O₃, AlF₃,
CeF₃, LaF₃, NdF₃, SmF₃, BaF₂, CaF₂, LiF, and combinations thereof. For example, the reflective material may be selected from metals and alloys thereof, and also from non-metallic reflective materials: Metals that may be used include Al, Ag, Cu, Au, Pt, Sn, Ti, Pd, Ni, Co, Rd, Nb, Cr, and materials, combinations, or alloys thereof. Such a reflective material may also, on its own, constitute the particle having a diffraction grating and which is thus a single-layer particle.

In a variant, the diffractive pigment may include a multilayer structure comprising a core of dielectric material with a reflective layer covering at least one side, or indeed completely encapsulating, the core. A layer of dielectric material may also cover the reflective layer(s). The dielectric material used is thus preferably inorganic, and may, for example, be selected from metal fluorides, metal oxides, metal sulfides, metal nitrides, metal carbides, and combinations thereof. The dielectric material may be in the crystalline, semi-crystalline, or amorphous state.

In this configuration, the dielectric material may, for example, be selected from the following materials: MgF₂, SiO, SiO₂, Al₂O₃, TiO₂, WO, AlN, BN, B₄C, WC, TiC, TiN, N₃Si₂, ZnS, glass particles, diamond-type carbons, and combinations thereof.

In a variant, the diffractive pigment may be composed of a preformed dielectric or ceramic material such as a naturally lamellar mineral, e.g. mica peroskovite or talc; or synthetic platelets formed from glass, alumina, SiO₂, carbon, an iron oxide/mica, mica covered in BN, BC, graphite, or bismuth oxychloride, and combinations thereof.

In particular, the diffractive pigment used may be selected from those described in US patent application No. 2003/0031870.

A diffractive pigment may, for example, have the following structure: MgF₂/Al/MgF₂, a diffractive pigment
having this structure being sold by FLEX PRODUCTS under the trade names SPECTRAFLAIR 1400 Pigment Silver or SPECTRAFLAIR 1400 Pigment Silver FG. The proportion by weight of MgF₂ may be in the range 80% to 95% of the total weight of the pigment.

Mention can also be made of the pigments SPECTRA F/X Silver by SPECTRATEK.

The diffractive pigment may also be the diffractive pigment found in the dispersion proposed by ECKART under the reference METALURE PRISMATIC. The METALURE PRISMATIC dispersion contains 95% ethyl acetate and 5% diffractive aluminum particles having a grain size of 50 μm. The particles of pigment may be recovered after distilling the ethyl acetate, which may be replaced by isononyl isononanoate, for example.

Such a pigment presents an aluminum content of about 90% to 100% by weight, with 5000 to 20000 diffractive patterns per square centimeter (cm²), and is described in publication WO 2005/05 5965 A1.

The size of the color-effect particles may lie in the range 5 μm to 200 μm, better in the range 5 μm to 100 μm.

The thickness of the color-effect particles may be less than or equal to 3 μm, better 2 μm, e.g. about 1 μm.

The density of the color-effect particles may be less than the density of the medium in which they are dispersed.

**Other possible coloring agents**

The composition may include one or more pigments other than the pigment(s) producing the color effect of intensity that increases after application as a result of them migrating towards the surface.

Where appropriate, the additional pigment(s) may be selected in such a manner as to present a possible rate of migration towards the surface that is slower than the migrating rate of the color-effect particles. Thus, said
color-effect particles remain as close to the surface as possible and are not masked unduly by the other pigment(s).

The total content in the composition of the other pigments may be selected as a function of their grain size so as to avoid preventing the color-effect particles from rising.

The other pigment(s) may contain "reflective particles", i.e. particles having size and structure, and in particular thickness in the layer(s) constituting them, and physical and chemical natures, and surface state, that allow them to reflect incident light. If appropriate, said reflection may have sufficient intensity to create highlight points on the surface of the composition or of the mixture, when the composition or the mixture is applied to the support surface to be made up, which highlight points are visible to the naked eye, i.e. they are points of greater brightness that contrast with their environment and appear to shine.

The reflective particles may have a yellow, pink, red, bronze, orangey, brown, gold, and/or coppery color or glint.

The reflective particles may be present in the first composition at a content lying in the range 0 to 15% by weight, preferably 0.1% to 10%, relative to the total weight of the composition.

Said particles may be in various forms, in particular they may be in the form of flakes, or they may be globular, in particular spherical.

Regardless of their form, the reflective particles may optionally have a multilayer structure; with a multilayer structure, for example, they may have at least one layer of uniform thickness, in particular of a reflective material.

When the reflective particles do not have a multilayer structure, they may, for example, be composed
of metal oxides, in particular oxides of titanium or iron obtained by synthesis.

When the reflective particles have a multilayer structure they may, for example, comprise a natural or synthetic substrate, in particular a synthetic substrate which is at least partially coated with at least one layer of a reflective material, in particular at least one metal or metallic material. The substrate may be a single material or multiple materials, and it may be organic and/or inorganic.

The composition may also include amongst the or other pigment(s) at least one nacre that may be selected from nacre pigments such as mica titanium coated with iron oxide, mica coated with bismuth oxychloride, mica titanium coated with chromium oxide, mica titanium coated with an organic colorant, in particular of the type mentioned above, and nacre pigments based on bismuth oxychloride. They may also be particles of mica on the surface of which at least two successive layers of metal oxides and/or organic coloring substances have been superimposed.

More particularly, the nacres may have a yellow, pink, red, bronze, orangey, brown, gold, and/or coppery color or glint.

Illustrative examples of nacres suitable for being introduced into the composition and that may be mentioned are gold color nacres, in particular those sold by ENGELHARD under the trade names Brilliant gold 212G (Timica), Gold 222C (Cloisonne), Sparkle gold (Timica), Gold 4504 (Chromalite), and Monarch gold 233X (Cloisonne); bronze nacres, in particular those sold by MERCK under the trade names Bronze fine (17384) (Colorona) and Bronze (17353) (Colorona), and by ENGELHARD under the trade name Super bronze (Cloisonne); orange nacres especially those sold by ENGELHARD under the trade names Orange 363C (Cloisonne) and Orange MCR 101 (Cosmica), and by MERCK under the trade names Passion
orange (Colorona) and Matte orange (17449) (Microna); brown-tinted nacres sold by ENGELHARD under the trade names Nu-antique copper 340XB (Cloisonne) and Brown CL4509 (Chromalite); nacres with a copper glint sold by ENGELHARD under the trade name Copper 340A (Timica); nacres with a red glint, especially those sold by MERCK under the trade name Sienna fine (17386) (Colorona); nacres with a yellow glint, especially those sold by ENGELHARD under the trade name Yellow (4502) (Chromalite); red-tinted nacres with gold glints, especially those sold by ENGELHARD under the trade name Sunstone G012 (Gemtone); pink nacres, especially those sold by ENGELHARD under the trade name Tan opale G005 (Gemtone); black nacres with a glint, especially those sold by ENGELHARD under the trade name Nu antique bronze 240 AB (Timica); blue nacres, especially those sold by MERCK under the trade name Matte blue (17433) (Microna); white nacres with silvery glints, especially those sold by MERCK under the trade name Xirona Silver; and orange-pink green-gold highlight nacres sold by MERCK under the trade names Indian summer (Xirona) and mixtures thereof.

The density of the pigments other than the pigment producing the color effect may be greater than the density of the color-effect pigment.

The composition may also contain colorants, organic pigments, or lakes.

The colorants may be liposoluble or hydrosoluble. Examples of liposoluble colorants are Sudan red, D&C Red No.17, D&C Green No.6, ß-carotene, soybean oil, Sudan brown, D&C Yellow No.11, D&C Violet No.2, D&C orange No.5, and quinoline yellow.

Examples of hydrosoluble colorants are beetroot juice and methylene blue.

The colorants may represent 0 to 5%, e.g. 0.01% to 5%, by weight of the composition when present.

The lakes or organic pigments may be selected from the following materials and mixtures thereof:
· cochineal carmine;
· the organic pigments of azo, anthraquinone, indigo, xanthene, pyrene, quinoline, triphenylmethane, or fluorane dyes; and
· organic lakes or insoluble salts of sodium, potassium, calcium, barium, aluminum, zirconium, strontium, titanium, or of acid dyes such as azo, anthraquinone, indigo, xanthene, pyrene, quinoline, triphenylmethane, or fluorine dyes, which dyes may comprise at least one carboxylic or sulfonic acid group.

Organic pigments that may be mentioned include those with the following denominations: D&C Blue No.4, D&C Brown No.1, D&C Green No.5, D&C Green No.6, D&C Orange No.4, D&C Orange No.5, D&C Orange No.10, D&C Orange No.11, D&C Red No.6, D&C Red No.7, D&C Red No.17, D&C Red No.21, D&C Red No.22, D&C Red No.27, D&C Red No.28, D&C Red No.30, D&C Red No.31, D&C Red No.33, D&C Red No.34, D&C Red No.36, D&C Violet No.2, D&C Yellow No.7, D&C Yellow No.8, D&C Yellow No.10, D&C Yellow No.11, FD&C Blue No.1, FD&C Green No.3, FD&C Red No.40, FD&C Yellow No.5, FD&C Yellow No.6.

The organic coloring substance may comprise an organic lake supported by an organic support such as colophane or aluminum benzoate, for example.

Particular organic lakes that may be mentioned include those with the following denominations: D&C Red No.2 Aluminum lake, D&C Red No.3 Aluminum lake, D&C Red No.4 Aluminum lake, D&C Red No.6 Aluminum lake, D&C Red No.6 Barium lake, D&C Red No.6 Barium/Strontium lake, D&C Red No.6 Strontium lake, D&C Red No.6 Potassium lake, D&C Red No.7 Aluminum lake, D&C Red No.7 Barium lake, D&C Red No.7 Calcium lake, D&C Red No.7 Calcium/Strontium lake, D&C Red No.7 Zirconium lake, D&C Red No.8 Sodium lake, D&C Red No.9 Aluminum lake, D&C Red No.9 Barium lake, D&C Red No.9 Barium/Strontium lake, D&C Red No.9 Zirconium lake, D&C Red No.10 Sodium lake, D&C Red No.19 Aluminum lake, D&C Red No.19 Barium lake, D&C Red No.19 Zirconium lake.
lake, D&C Red No.21 Aluminum lake, D&C Red No.21
Zirconium lake, D&C Red No.22 Aluminum lake, D&C Red
No.27 Aluminum lake, D&C Red No.27
Aluminum/Titanium/Zirconium lake, D&C Red No.27 Barium
5 lake, D&C Red No.27 Calcium lake, D&C Red No.27 Zirconium
lake, D&C Red No.28 Aluminum lake, D&C Red No.30 lake,
D&C Red No.31 Calcium lake, D&C Red No.33 Aluminum lake,
D&C Red No.34 Calcium lake, D&C Red No.36 lake, D&C Red
No.40 Aluminum lake, D&C Blue No.1 Aluminum lake, D&C
10 Green No.3 Aluminum lake, D&C Orange No.4 Aluminum lake,
D&C Orange No.5 Aluminum lake, D&C Orange No.5 Zirconium
lake, D&C Orange No.10 Aluminum lake, D&C Orange No.17
Barium lake, D&C Yellow No.5 Aluminum lake, D&C Yellow
No.5 Zirconium lake, D&C Yellow No.6 Aluminum lake, D&C
15 Yellow No.7 Zirconium lake, D&C Yellow No.10 Aluminum
lake, FD&C Blue No.1 Aluminum lake, FD&C Red No.4
Aluminum lake, FD&C Red No.40 Aluminum lake, FD&C Yellow
No.5 Aluminum lake, FD&C Yellow No.6 Aluminum lake.

The chemical materials corresponding to each of the
organic coloring substances listed above are mentioned in
the work entitled "International Cosmetic Ingredient
and 524 to 528, published by "The Cosmetic, Toiletry, and
Fragrance Association", the contents of which are
incorporated herein by reference.

The composition may contain a composite pigment. In
particular, the composite pigment may be composed of
particles comprising an inorganic core and at least one
at least partial coating of at least one organic coloring
substance. At least one binder may advantageously
contribute to fixing the organic coloring substance onto
the inorganic core.

**Fillers**

In addition to the color-effect particles and the
other coloring agent(s) that are possibly present, the
composition may include at least one filler.
The term "filler" means particles of any form which are insoluble in the composition medium regardless of the temperature at which the composition is manufactured. A filler primarily acts to modify the rheology or texture of the composition. The kind and the quantity of particles could depend on the mechanical properties and textures desired, but the quantity of filler(s) is selected in such a manner as to avoid unduly preventing the color-effect particles migrating towards the surface, or avoid preventing the desired color effect from being obtained.

Examples of fillers that may be mentioned include amongst others talc, mica, silica, kaolin, and sericite, and powders of polyamide, polyolefin, e.g. polyethylene, polytetrafluoroethylene, polymethylmethacrylate, or polyurethane, powdered starch, and silicone resin beads. The filler content could be relatively small, e.g. less than or equal to 15% by weight.

**Volatile solvent(s)**

The composition includes at least one volatile solvent that presents a boiling point, at atmospheric pressure, that is less than or equal to 150°C, better less than or equal to 120°C, still better less than or equal to 105°C or 90°C. The solvent can be organic.

By way of example, the solvent is selected from ethanol \( (T_{bp} \, 78°C) \), isopropanol \( (T_{bp} \, 82.4°C) \), and HDMS \( (T_{bp} \, 100°C) \), or mixtures thereof, amongst others.

The volatile solvent can be completely miscible in the liquid phase of the composition and compatible therewith.

The total content of volatile solvent(s), that cause convection movements in the medium by evaporating, can be less than or equal to 20%, e.g. possibly lying in the range 2% to 20% for ethanol or isopropanol, and in the
range 2% to 15% for HDMS, and it is selected as a function of the kind of material to be made-up.

The weight ratio of the volatile solvent(s) relative to the other liquid compounds of the medium lies in the range 0.005 to 0.11, for example, better 0.02 to 0.07.

**Oily phase**

The composition may include an oily phase, which may comprise one or more liquid compounds having a boiling temperature that is greater than the boiling temperature of the volatile solvent(s) responsible for the convection movements, in particular a boiling temperature that is greater than or equal to 150°C.

The composition may include at least one fat that is liquid at ambient temperature (25°C) and/or possibly a fat that is solid in suspension at ambient temperature, such as waxes, pasty fats, gums, and mixtures thereof, providing its presence does not prevent the particles from rising, and providing the composition remains sufficiently transparent.

Fats that are liquid at ambient temperature, usually termed "oils", that may be mentioned are: hydrocarbon-containing vegetable oils such as liquid fatty acid triglycerides containing 4 to 10 carbon atoms, for example heptanoic or octanoic acid triglycerides, or sunflower, corn, soybean, grapeseed, sesame seed, apricot kernel, macadamia nut, castor, or avocado stone oil, caprylic/capric acid triglycerides, jojoba oil, shea nut butter oil, lanolin, acetylated lanolin; linear or branched hydrocarbons of mineral or synthetic origin, such as paraffin oils and their derivatives, Vaseline, polydecenes, hydrogenated polyisobutene such as Parleam; synthesized esters and ethers, in particular fatty acids such as Purcellin oil, isopropyl myristate, 2-ethylhexyl palmitate, 2-octyldodecyl stearate, 2-octyldodecyl erucate, isostearyl isostearate; hydroxylated esters such as isostearyl lactate, octylhydroxystearate, octyldodecyl hydroxystearate, diisostearylmalate, triisocetyl citrate,
fatty alcohol heptanoates, octanoates, or decanoates; isononyl isonanoate, isopropyl lanolate, tridecyl trimellilrate, diisostearyl malate; polyol esters such as propylene glycol dioctanoate, neopentylglycol diheptanoate, diethyleneeglycol diisononanoate; and pentaerythritol esters; fatty alcohols containing 12 to 26 carbon atoms, such as octyldecanol, 2-butyloctanol, 2-hexyldecanol, 2-undecylpentadecanol, or oleic alcohol; partially hydrocarbonated and/or siliconized fluorinated oils; silicone oils such as volatile or non-volatile, linear or cyclic polymethylsiloxanes (PDMS) which may be liquid or pasty at ambient temperature, such as cyclo- methicones or dimethicones, optionally comprising a phenyl group, such as phenyl trimethicones, phenyltri-methylsiloxydiphenyl siloxanes, diphenylmethyldimethyltrisiloxanes, diphenyl dimethicones, phenyl dimethicones, polymethylphenylsiloxanes; and mixtures thereof.

The oil(s) listed above may present a total content lying in the range 0 to 95% by weight depending on the oil, relative to the total weight of the composition.

The oil(s) may be selected in such a manner as to be compatible with the low boiling point volatile solvent(s), and in such a manner as to avoid increasing unduly the viscosity of the composition.

The composition need not have any pasty or solid fats such as waxes or gums, for example.

**Active ingredients and other compounds**

The composition may include at least one cosmatically or dermatologically active ingredient. Suitable cosmatically, dermatologically, hygienically, or pharmaceutically active ingredients for use in the compositions of the invention that may be mentioned are moisturizing agents (polyols such as glycerine), vitamins (C, A, E, F, B, or PP), essential fatty acids, essential oils, ceramides, sphingolipids, liposoluble or nanoparticle sun screens, and specific skin treatment
active ingredients (protective agents, antibacterials, anti-wrinkle agents, etc), self-tanning agents.

Said active ingredients may be used in concentrations in the range 0 to 20%, for example, in particular in the range 0.001% to 15% relative to the total weight of the composition.

More generally, the composition may contain any ingredient that is routinely used in cosmetics, such as thickeners, surfactants, oligo-elements, moisturizing agents, softeners, sequestrating agents, fragrances, alkalinizing or acidifying agents, preservatives, antioxidants, UV filters, or mixtures thereof.

Depending on the envisaged application, the composition of the invention may thus include constituents which are conventionally used in the fields under consideration, and which are present in quantities appropriate to the desired dosage form.

The composition need not have any film-forming agent, as mentioned above. In a variant, the composition may include a film-forming polymer, i.e. a polymer that can form, by itself or in the presence of an additional film-forming agent, a continuous film that adheres to a support surface, in particular to keratinous materials. In the presence of one or more film-forming agents, care should be taken to ensure that the film does not form at a rate that completely prevents the color-effect particles from rising.

**Proposed examples**

The proportions indicated below are proportions by weight, unless specified to the contrary.

**Measuring the color path**

In the examples below, the color path was measured as follows.

The composition was spread onto a LENETA 1A standard contrast chart at a thickness of 250 μm and at a spreading rate of 1 (BRAIVE INSTRUMENTS spreading bench). After 5 min the measurement was taken.
The contrast chart was placed under a spectrogonioreflectometer referenced GON 360, in accordance with the measuring configuration shown in Figure 2, the measurements being taken at angles 45°/30°, 45°/20°, 45°/10°, 45°/0°, 45°/-10°, 45°/-20°, 45°/-30°, 45°/-40°, 45°/-45°, 45°/-50°, 45°/-60°, 45°/-70°, and 45°/-80°.

### Example 1

<table>
<thead>
<tr>
<th>Material</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polybutene (M.W. 1290 grams per mole (g/mol))</td>
<td>76.9</td>
</tr>
<tr>
<td>Octyldodecanol</td>
<td>8.7</td>
</tr>
<tr>
<td>Ethanol</td>
<td>6.5</td>
</tr>
<tr>
<td>Isononyl isononanoate</td>
<td>7.75</td>
</tr>
<tr>
<td>Diffractive aluminum particles *</td>
<td>0.15</td>
</tr>
</tbody>
</table>

* diffractive aluminum particles of size 50 μm extracted from METALURE PRISMATIC® dispersion.

Polybutene exists under various molecular weights, thereby making it possible to vary the viscosity of the composition. Octyldodecanol contributes to the stability of the composition.

With this composition, the color path given in Figure 3 was obtained.

The viscosity was 4.9 Pa.s. under shear of 1000 s⁻¹ at 25°C.

### Example 2

In this example, the diffractive particles were associated with a purple pigment.

<table>
<thead>
<tr>
<th>Material</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polybutene</td>
<td>73.2</td>
</tr>
<tr>
<td>Octyldodecanol</td>
<td>8.3</td>
</tr>
<tr>
<td>Isononyl isononanoate</td>
<td>7.35</td>
</tr>
<tr>
<td>Diffractive aluminum particles *</td>
<td>0.15</td>
</tr>
<tr>
<td>Ethanol</td>
<td>6.2</td>
</tr>
<tr>
<td>Pigment **</td>
<td>4.8</td>
</tr>
</tbody>
</table>
* ditto Example 1.

** pigment sold under the reference DUOCROME SPARKLE RB624J by ENGELHARD and comprising 69.5% mica, 28% TiO₂, 2.5% carmine.

With this composition, the color path shown in Figure 4 was obtained.

**Example 3**

In this example, the diffractive particles are associated with a gold-colored interference pigment.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polybutene</td>
<td>73.2</td>
</tr>
<tr>
<td>Octyldecaneol</td>
<td>8.3</td>
</tr>
<tr>
<td>Isononyl isonanoate</td>
<td>7.35</td>
</tr>
<tr>
<td>Diffractive aluminum particles *</td>
<td>0.15</td>
</tr>
<tr>
<td>Ethanol</td>
<td>6.2</td>
</tr>
<tr>
<td>Interference pigment **</td>
<td>4.8</td>
</tr>
</tbody>
</table>

* ditto Example 1.

*** pigment sold by ENGELHARD under the reference DESERT REFLECTIONS SUNLIT CACTUS 832D and comprising 48% TiO₂, 40% mica, 12% iron oxides.

With this composition, the color path given in Figure 5 was obtained.

For Examples 1 to 3, the sandpaper and dish tests are conclusive.

The same applies with application to the skin.

For Examples 2 and 3, under low brightness, the bulk color of the additional pigment that serves to mask the grey color of the diffractive aluminum particles is observed, and under high brightness, the color effect resulting from the diffractive pigment is observed in addition to the color effect of the additional pigment.
### Comparative Example 1

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polybutene</td>
<td>76.9</td>
</tr>
<tr>
<td>Octyldodecanol</td>
<td>8.7</td>
</tr>
<tr>
<td>Isononyl isononanoate</td>
<td>7.75</td>
</tr>
<tr>
<td>Cyclopentadimethyl Siloxane ($T_{bp}$ of 211°C)</td>
<td>6.5</td>
</tr>
<tr>
<td>Diffractive aluminum particles *</td>
<td>0.15</td>
</tr>
</tbody>
</table>

* ditto Example 1.

### Comparative Example 2

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polybutene</td>
<td>76</td>
</tr>
<tr>
<td>Octyldodecanol</td>
<td>8.7</td>
</tr>
<tr>
<td>Isononyl isononanoate</td>
<td>7.75</td>
</tr>
<tr>
<td>Isododecane ($T_{bp}$ of 176 at 192°C)</td>
<td>6.5</td>
</tr>
<tr>
<td>Diffractive aluminum particles *</td>
<td>0.15</td>
</tr>
</tbody>
</table>

* ditto Example 1.

For both of these compositions, the diffractive effect was practically zero during the dish test.

The color path was almost non-existent, as can be seen in Figures 6 and 7 which respectively show the color paths for the compositions of the comparative Examples 1 and 2.

The expression "comprising a" should be understood as being synonymous with "comprising at least one", unless specified to the contrary.
CLAIMS

1. A fluid cosmetic composition comprising, in a cosmically-acceptable medium, one or more volatile solvents and color-effect particles, the medium being suitable, after forming a deposit of the composition on keratinous materials, for enabling the color effect to develop progressively after application, as a result of the particles rising to the surface of the deposit during evaporation of the volatile solvent(s).

2. A composition according to claim 1, the volatile solvent(s) being organic.

3. A composition according to claim 1 or claim 2, the volatile solvent(s) total content being less than or equal to 20% by weight of the composition.

4. A composition according to the preceding claim, the content being less than or equal to 15% by weight.

5. A composition according to claim 4, the content being less than or equal to 10% by weight.

6. A composition according to claim 4, the content being less than or equal to 6% by weight.

7. A composition according to any preceding claim, the volatile solvent(s) having a boiling temperature (under atmospheric pressure) that is less than or equal to 150°C.

8. A composition according to any preceding claim, the volatile solvent(s) having a boiling temperature that is less than or equal to 105°C.
9. A composition according to claim 8, the volatile solvent(s) having a boiling temperature that is less than or equal to 90°C.

10. A composition according to any preceding claim, the medium comprising a liquid compound or a mixture of liquid compounds, and being compatible with the volatile solvent(s), having a boiling temperature that is greater than or equal to the boiling temperature of the volatile solvent(s).

11. A composition according to claim 10, said boiling temperature of at least one liquid compound other than the volatile solvent(s) being greater than or equal to 150°C.

12. A composition according to claim 10 or claim 11, the content of said liquid compound or said mixture of liquid compounds being greater than or equal to the content of the volatile solvent(s), in particular greater than or equal to 50% by weight.

13. A composition according to any preceding claim, the color-effect particles being generally platelet shaped.

14. A composition according to any preceding claim, the color-effect particles being of size that is greater than or equal to 5 μm.

15. A composition according to any preceding claim, the color-effect particles being configured so as to produce a color effect by an interference phenomenon.

16. A composition according to the preceding claim, the color-effect particles including at least one diffraction grating.
17. A composition according to the preceding claim, the color-effect particles presenting a multilayer interference structure.

18. A composition according to any preceding claim, the color-effect particles comprising a metal.

19. A composition according to claim 18, the metal being aluminum.

20. A composition according to any preceding claim, including a volatile solvent selected from ethanol, isopropanol, and HDMMS.

21. A composition according to claim 20, the solvent content being less than or equal to 15% by weight, better 10%.

22. A composition according to any preceding claim, the medium comprising an oil.

23. A composition according to the preceding claim, the oil having a boiling temperature that is greater than or equal to the boiling temperature of the volatile solvent(s), in particular greater than or equal to 150°C.

24. A composition according to claim 22 or claim 23, the oil being a hydrocarbon-containing oil.

25. A composition according to any one of claims 22 to 24, the oil content lying in the range 20% to 99% by weight, better in the range 50% to 99%.

26. A composition according to any preceding claim, the viscosity of the composition at 25°C and under shear of 1000 s⁻¹ being greater than or equal to 0.5 Pa.s.
27. A composition according to any preceding claim, the viscosity of the composition at 25°C being less than or equal to 10 Pa.s. under shear of 1000 s⁻¹.

28. A composition according to any preceding claim, said composition not having a film-forming agent, in particular nitrocellulose.

29. A composition according to any preceding claim, said composition not having coloring agent other than the color-effect particles.

30. A composition according to any one of claims 1 to 28, including at least one coloring agent other than the color-effect particles.

31. A composition according to claim 30, the coloring agent comprising a pigment, in particular an interference pigment.

32. A composition according to claim 31, the pigment being selected in such a manner as to present a possible rate of migration towards the surface that is slower than the migrating rate of the color-effect particles.

33. A composition according to any preceding claim, said composition not having solid bodies other than the color-effect particles and the other possible coloring agents.

34. A composition according to any preceding claim, the content within the composition of solid bodies, other than the color-effect particles, being less than or equal to 15% by weight.

35. A composition according to any preceding claim, the content within the composition of solid bodies, other
than the color-effect particles, being less than or equal to 5% by weight, better 2%.

36. A composition according to any preceding claim, the color-effect particles being of a content in the composition that is less than or equal to 0.5% by weight.

37. A composition according to any preceding claim, said composition being for applying to the skin.

38. A composition according to any one of claims 1 to 35, said composition being for applying to the lips.

39. A composition according to any one of claims 1 to 35, said composition being for applying to the nails.

40. A composition according to any one of claims 1 to 35, said composition being for applying to the hair.

41. A cosmetic composition comprising:
   · one or more volatile organic solvents having a boiling temperature (under atmospheric pressure) that is less than or equal to 150°C, better 105°C, and being of a total content that is less than or equal to 20% by weight, better 10%;
   · at least one oil, in particular having a boiling temperature that is greater than or equal to 150°C, the total content of oily fat in the composition being greater than or equal to 50% by weight; and
   · color-effect particles, in particular a diffractive pigment, being of a content that is less than or equal to 2% by weight; the total content of solid bodies being less than or equal to 15% by weight, better 5%,

45. the viscosity of the composition lying in the range 0.5 Pa.s to 10 Pa.s at 25°C under shear of 1000 s⁻¹.
42. A method of applying makeup to keratinous materials, the method comprising the steps consisting in forming, on said keratinous materials, a deposit of a composition as defined in any preceding claim, and in leaving the deposit to dry in such a manner as to enable the color-effect particles contained in the composition to rise towards the surface of the deposit and adopt the same general orientation.

43. A method according to the preceding claim, the time taken to obtain the color effect associated with the rise of the particles being less than or equal to 5 min.