

AUSTRALIA

Patents Act 1990

646690

PATENT REQUEST: STANDARD PATENT

(Convention Application)

I, being the person identified below as the Applicant, request the grant of a patent to the person identified below as the Nominated Person, for an invention described in the accompanying standard complete specification

Full application details follow.

[71] Applicant: MORRIS HERSTEIN
Address: 250 Garth Road, Scarsdale, New York 10583, United States of America.

[70] Nominated Person: MORRIS HERSTEIN
Address: As above

[54] Invention Title: "COATED COSMETIC MATERIALS AND METHOD OF COATING COSMETIC MATERIALS"

[72] Name(s) of actual inventor(s): MORRIS HERSTEIN

[74] Address for service in Australia: WRAY & ASSOCIATES, Primary Industry House, 239 Adelaide Terrace, Perth, Western Australia, 6000.

Attorney code: WR

BASIC CONVENTION APPLICATION(S) DETAILS

.....
.....
.....

[31] Application Number	[33] Country	Country Code	[32] Date of Application
591815	USA	US	2/10/90

MORRIS HERSTEIN
By his Patent Attorney

Greg Bartlett

L. G. ...

2 October 1991
(Date)

Convention Application
(Individual)

AUSTRALIA

Patents Act 1990

NOTICE OF ENTITLEMENT
(To be filed before acceptance)

I, Morris Herstein
of 250 Garth Road, Scarsdale, NY 10583, USA

being the applicant in respect of a patent application entitled
COATED COSMETIC MATERIALS AND METHOD OF COATING COSMETIC MATERIALS
state the following:-

1. The person(s) nominated for the grant of the patent:

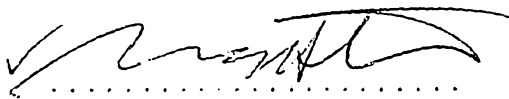
~~*is/^sthe actual inventor(s)
or
*has entitlement from the actual inventor(s).....
.....
(eg by assignment, by mesne assignment, as legal
representative of..., etc)~~

2. The person(s) nominated for the grant of the patent:

~~*is/^sthe applicant(s) of the basic application(s)
listed on the patent request form
or
*has entitlement from the applicant(s) of the basic
application(s) listed on the patent request form
.....
(eg by assignment, by mesne assignment, by consent, etc)~~

3. *The basic application(s) listed on the request form:

~~*is/^sthe first application(s) made in a Convention
country in respect of the invention
or
*was/^{were} not the first application(s) made in a
Convention country in respect of the invention, and a
request has been made under Section 96 of the Patent Act
1990 (or Section 142AA of the Patents Act 1952) to
disregard the following application(s)~~



(Signature)

Morris Herstein

✓ 9/14/91
(Date)

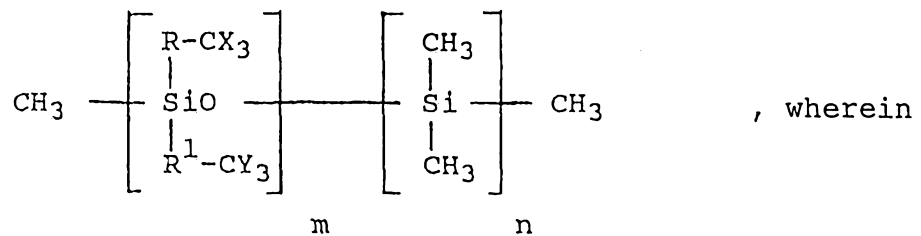


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(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 646690

- (54) Title
COATED COSMETIC MATERIALS AND METHOD OF COATING COSMETIC MATERIALS
- International Patent Classification(s)
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A61K 007/043
- (21) Application No. : **85548/91** (22) Application Date : **02.10.91**
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- (31) Number (32) Date (33) Country
591815 02.10.90 US UNITED STATES OF AMERICA
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- (71) Applicant(s)
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- (72) Inventor(s)
MORRIS HERSTEIN
- (74) Attorney or Agent
WRAY & ASSOCIATES , PO Box 6292, Hay Street, EAST PERTH WA 6004
- (56) Prior Art Documents
GB 2224274
- (57) Claim

1. A cosmetic powder physically coated with from 0.01 to 30.0 weight percent of a trifluoroalkylpolysiloxane compound of the general formula:

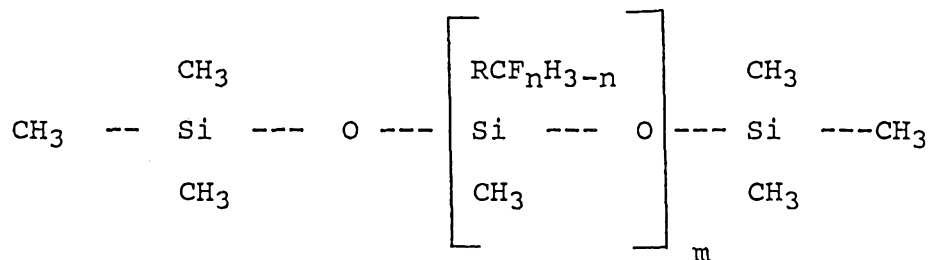


m is an integer averaging from 1 to 1000;
 n is 0 or 1;
 R and R¹ are alkyl groups of from 1 to 10 carbons;
 X is hydrogen or fluorine;
 Y is hydrogen or fluorine where at least one of X and Y is fluorine; and the trifluoro groups may be randomly or uniformly disposed over the polysiloxane structure.

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(10) 646690

-2-

8. A cosmetic powder physically coated with a flouroalkylpolysiloxane compound of the general forumula:



m is an integer averaging from 1 to 500;

n is 0, 1, 2 or 3;

R is an alkyl group of 0.10 carbons; and the flouro groups may be randomly or uniformly disposed over the polysiloxene structure.

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COMPLETE SPECIFICATION

For a Standard Patent

ORIGINAL

TO BE COMPLETED BY APPLICANT

Name of Applicant: MORRIS HERSTEIN

Actual Inventor: MORRIS HERSTEIN

Address for Service:

WRAY & ASSOCIATES, Primary Industry House, 239 Adelaide Terrace, Perth, Western Australia, 6000.

Attorney code: WR

Invention Title: "COATED COSMETIC MATERIALS AND METHOD OF COATING COSMETIC MATERIALS"

The following statement is a full description of this invention, including the best method of performing it known to me:-

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**COATED COSMETIC MATERIALS AND
METHOD OF COATING COSMETIC MATERIALS**

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TECHNICAL FIELD

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The present invention relates to cosmetic materials and

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improved cosmetic formulations resulting from coatings

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applied to powders and particulates used in cosmetic

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formulations.

1

2

BACKGROUND

3 The increasing importance of personal appearance, whether
4 in projecting a healthy, youthful or stylish image, has led
5 to an increasing demand for cosmetics. The demand is being
6 met by a growing number of products and suppliers with an
7 attendant expansion in competition.

8

9 Product quality is important and is reflected by many
10 qualities and characteristics of each product. Physical
11 appearance of the product should be homogeneous. Any
12 streaking, settling or separation has an adverse impact on
13 the consumer.

14

15 A cosmetic should apply smoothly, have a good skin adhesion
16 and a good feel. A makeup that applies unevenly, flakes,
17 smears or feels overly dry or oily is not likely to be
18 favorably received.

19

20 Color consistency from batch to batch is also of
21 importance. Small variances in shade are noticeable in
22 cosmetics and accordingly a consumer's expectation in
23 receiving the same shade as previously obtained should be
24 fulfilled.

25

26

1 Cosmetics use varying amounts of particulates including
2 pigments, pearlescent materials, extenders, etc., dispersed
3 in oils, waxes and emulsions. Uniform dispersion,
4 suspension stability and particulate loading in a
5 suspension are all factors affecting the product quality.
6 Obviously, optimization of all is desirable.

7

8 Problems are encountered in trying to improve one or two
9 factors without adversely affecting another or improving
10 desired characteristics without introducing other
11 detrimental effects.

12

13 Coating of pigments, extenders and fillers has been used to
14 enhance dispersion of particulates by increasing
15 hydrophobicity. Increased hydrophobicity also aids in the
16 suspension of particulates in cosmetic preparations.

17

18 Pigments have been treated with lecithin along with
19 lecithin component fatty acids and related fatty acids.

20 Metal alkoxides, metal soaps and metal salts of fatty acids
21 have been used with success.

22

23 Silicone treatment of pigments is another method of
24 treatment and results in improved hydrophobicity.

25 Dispersion, suspension and loading characteristics are all
26 improved as are the water repellence and spreadability of a

1 product incorporating the treated pigment. Enhanced skin
2 adhesion and reduced color change on skin are also benefits
3 of silicone treatment.

4

5 Simethicone (dimethyl polysiloxane) has been widely used as
6 a coating and is one of the simplest, structurally, of the
7 silicones used. However, with all the advantages
8 associated with silicone treatment, a problem common to all
9 the silicones results in adverse characteristics in the
10 final product, including the failure to have extended shelf
11 life.

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13

SUMMARY OF THE INVENTION

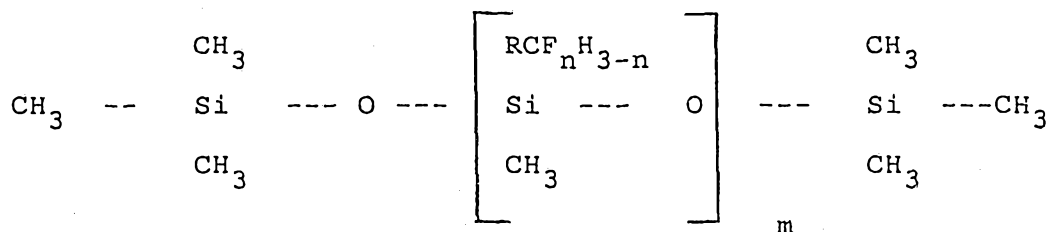
14 Hydrogen generation has been observed from the silicone
15 treated pigments and the hydrogen generation may be
16 pronounced in emulsion systems and alkaline systems. The
17 hydrogen generation is severe enough to raise questions
18 about whether the silicone treatment is desirable in such
19 systems or where a long shelf life is required.

20

21 The invention is intended to provide a remedy to this
22 problem. It solves the problem of how to achieve desired
23 results in optimizing cosmetic characteristics without
24 introducing some of the known drawbacks of existing
25 formulations.

26

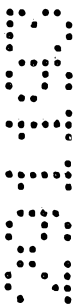
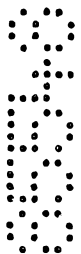
The present invention provides a cosmetic powder physically coated with a flouroalkylpolysiloxane compound of the general formula:



m is an integer averaging from 1 to 500;

n is 0, 1, 2 or 3;

R is an alkyl group of 0 to 10 carbons; and the flouro groups may be randomly or uniformly disposed over the polysiloxene structure.



1
2 Silicone treatment achieves many desired advantages for
3 incorporating pigments and other cosmetic materials in
4 cosmetic products. Certain silicone structures have been
5 modified and result in coatings that are useful without the
6 drawback of hydrogen production.

7

8 **BEST MODE FOR CARRYING OUT THE INVENTION**

9 In principle, substitution for the methyl units in
10 simethicone will retain the silicone-oxygen backbone of the
11 silicone structure. The beneficial effects as a coating
12 can also be retained. However, the substitution of
13 hydrogen or an alkyl group for the methyl group does not
14 improve the hydrogen generation problem.

15

16 Moreover, substitution of a non-halogen, other than
17 hydrogen or an alkyl group, for the methyl group can
18 adversely affect the hydrophobicity of the compound.

19

20 Substitution with halogens can preserve the hydrophobicity
21 but may also produce diatomic halogen gas or a gaseous
22 hydrogen halide acid in addition to the hydrogen gas.

23 Fluorine has, however, in some instances been found to
24 behave differently in this respect from the other halogens.

25

26 In accordance with the present invention, it has been found

1 that flourine combined with carbon in a terminal methyl
2 group extending from, but not directly bonded to, a
3 silicone atom has been found to produce an extremely stable
4 compound. More particularly, flouroalkyl-, diflouroalkyl-
5 and triflouroalkylpolysiloxanes, in accordance with the
6 invention, all show great stability and avoid the problem
7 of hydrogen generation. Flouroaklyl- polysiloxanes where
8 the flourine is on a terminal methyl group of up to a 10
9 carbon alkyl group bonded to a silicone atom are also
10 effective. Flourine may be present on more than one methyl
11 group as long as the methyl group bonded to the silicone
12 backbone is not flourine bearing.

13

14 Triflouroalkylpolysiloxanes are commercially available from
15 Grant Industries, Inc. under the name Gransil and have
16 proved most satisfactory in coating pigments, extenders,
17 pearlescents and filler material for cosmetics.

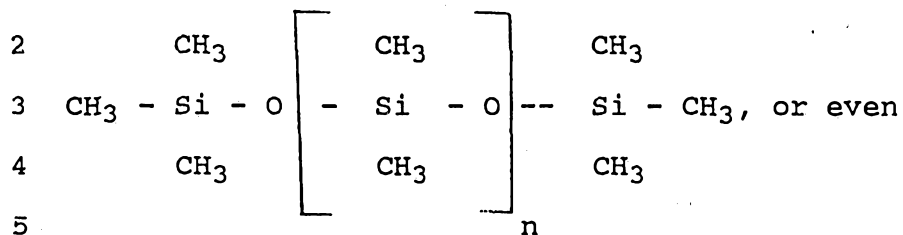
18

19 It is also been discovered by experimentation that the
20 flouroalkyl groups can be uniformly or randomly spread
21 about the silicone-oxygen backbone. The flouroalkyl groups
22 discourage hydrogen generation when as few as approximately
23 one flouroalkyl group per ten silicone-oxygen units is
24 present.

25

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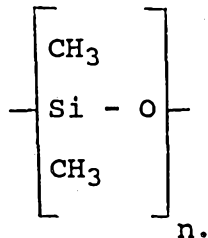
1 Dimethicone is represented by the formula:



5

6

7 more basically as:



8

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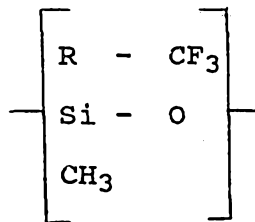
11 Substitution of a flourinated alkyl group of 2 to 10
 12 carbons (-R-CF₃) for some methyl (-CH₃) groups in
 13 dimethicone to yield units of

14

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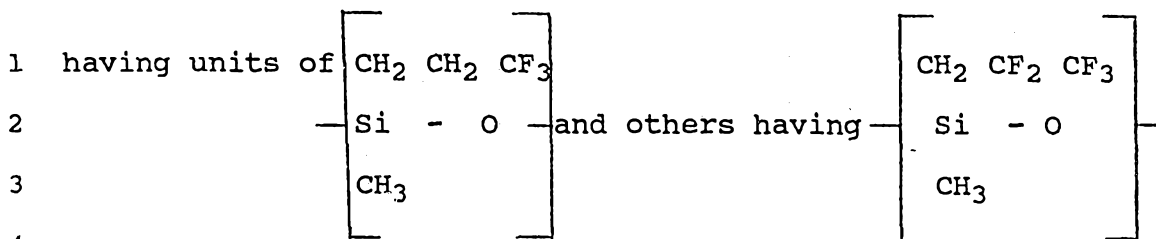
18

19 achieve the desired result. The terminal flourinated
 20 methyl group may be -CH₂F, -CHF₂ or -CF₃. Methyl (-CH₂-)
 21 units in the alkyl group R may also be flourinated as long
 22 as the initial methyl unit, that unit bonded to the
 23 silicone, is not flourinated. For example, polysiloxanes

24

25

26



5 interspersed along the basic dimethicone structure have
6 both proved very suitable.

7

8 The flouroalkyl-polysiloxane may average up to 500 or 1000
9 monomer units in length although units in the 1 to 500
10 range are preferred. Sub ranges of 1 to 100 and 100 to
11 500 are both very effective.

12

13 Alkyl units up to 10 carbons in length may be bonded to a
14 silicone atom although 2 to 5 carbon alkyls are preferable.

15

16 The inventive flouroalkylpolysiloxanes have beneficial
17 effects as a cosmetic particulate coating when as little as
18 0.01 weight percent of the coating, with respect to the
19 coated particulate, is used. In excess of 30.0 weight
20 percent of the coating may be used although such great
21 amounts are not necessary.

22

23 Flouroalkylpolysiloxanes and products incorporating the
24 inventive coating have a high degree of solvent resistance
25 and retain their excellent stability even when aged at
26 temperatures as high as 45°C.

1

2 Surface treatment, in accordance with the invention of
3 pigments, pigment extenders and particulate matter used for
4 decorative and non-decorative cosmetics using substituted
5 fluoroalkylpolysiloxanes results in enhanced lubricity and
6 water repellency (hydrophobicity) and greater adhesion to
7 the skin with no tactile negatives. When dispersed with
8 other materials it gives less color change on the skin and
9 with emulsion systems these surface treated materials are
10 suspended easily and are completely stable even under
11 alkaline conditions.

12

13 Treatment of pigments, pigment extenders and other
14 particulate matter may be achieved by the following method
15 in accordance with the invention.

16

17 This method of treatment comprises the addition of 0.01 to
18 30 weight percent (typically found to work well in the
19 range of about two percent) of the fluoroalkylpolysiloxane
20 to the solid material (pigment, pigment extender or other
21 particulate matter) by spraying into a fluidized, agitated
22 filler bed or prilling tower containing the cosmetic raw
23 material. The sprayed powder is then transferred to a
24 mixer such as a PK twin shell blender (with intensifier
25 bar). One may also use a Littleford-Lodige mixer
26 granulator, a ribbon blender, pan mixer, paddle mixer, a

1 vertical screw mixer, turbine mixer, twin rotator mixer or
2 Muller mixer. The mixing is continued in the PK blender
3 mix until adequate treatment is achieved. This may be
4 determined by the degree to which the solid particulates,
5 with their various porosities have absorbed the
6 fluoroalkylpolysiloxanes.

7

8 The treated material is then pulverized by using a suitable
9 micropulverizer. One may also employ a hammer mill, cage
10 mill, tumbling ball mill, roller mill, disc mill, fluid
11 energy mill or any suitable micronizer. The milling or
12 pulverizing process is repeated usually 2 to 3 times to
13 obtain uniform and desired particle size. Desired particle
14 size is selected in accordance with the size typically and
15 conventionally required for the particular end product
16 being manufactured.

17

18 The treated powders/particulate matter may be composed of
19 any of the following powdered materials as single
20 ingredients or combinations thereof:

21

22 Pigments:

23 Organic Colors

24 Titanium Dioxide

25 Zinc Oxide

26 Iron Oxides (Red, Black & Yellow)

- 1 Zirconium Oxide
- 2 Ultramarine (Blue, Violet & Pink)
- 3 Prussian Blue
- 4 Chromium Oxides
- 5 Chromium Hydroxides
- 6 Manganese Violet
- 7 Carmine
- 8 Ferric Ferrocyanides
- 9 Ferric Ammonium Ferrocyanides
- 10 Iron Hydroxides
- 11
- 12 Pigment Extenders:
- 13 Talc
- 14 Kaolin
- 15 Magnesium Carbonate
- 16 Calcium Carbonate
- 17 Boron Nitride
- 18 Sericites
- 19 Mica
- 20 Aluminium Hydroxide
- 21 Bismuth Oxychloride
- 22 Magnesium Aluminum Silicate
- 23 Silica Beads
- 24 Aluminum Silicate
- 25
- 26

1 Other Particulate Matter:

- 2 Nylons (Polyamides)
- 3 Sunscreens
- 4 Cellulose
- 5 Ceramic Beads
- 6 Polymethacrylate polymers and copolymers
- 7 Ethylene/Acrylates polymers and copolymers
- 8 Styrene/Divinylbenzene polymer and copolymers.

9

10 The treated powders are then utilized to prepare various
11 cosmetic formulas for such products as eye Shadows,
12 blushers, face powders, lipsticks, mascara, liquid
13 eyelines, cream make-up, liquid make-up, liquid eye shadow,
14 nail polish, treatment skin lotions and creams, multiphase
15 emulsions, lip gloss, eye pencils, lip pencils and rouge.

16

17 Four typical make-up formulations using materials coated
18 with the flourinated polysiloxane are given below. It is
19 noted that some ingredients may be totally dispensed with,
20 additional ingredients may be used and most if not all
21 ingredients may be substituted for.

Example 1-1

1

2 A typical eye shadow makeup products were prepared using
3 the indicated weight percent of various ingredients.

4 Flouroalkylpolysiloxane treated materials are noted as
5 "treated in the table below.

6 <u>Material</u>	7 <u>Weight Percent</u> <u>Range</u>	<u>Preferred</u> <u>Composition</u>
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8

9 Talc	70 to 80	74.7
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10 Zinc Stearate	3 to 9	6.0
------------------	--------	-----

11 Magnesium Carbonate	0 to 5	2.0
------------------------	--------	-----

12 Treated Titanium Dioxide	1 to 5	2.0
-----------------------------	--------	-----

13 Treated Iron Oxides	0 to 3	1.0
------------------------	--------	-----

14 Treated Ultramarine Blue	1 to 15	8.0
-----------------------------	---------	-----

15 Squalane	0 to 10	4.0
-------------	---------	-----

16 Mineral Oil	0 to 5	1.0
----------------	--------	-----

17 Lanolin Alcohol	0 to 3	0.5
--------------------	--------	-----

18 Preservatives	0 to 3	0.8
------------------	--------	-----

19 The manufacturing process comprises mixing the powder

20 ingredients, followed by addition of the liquid/oil phase

21 and mixing well. The resultant mixture was then pressed

22 into a mold. Suitable results may be achieved by varying

23 ingredients within the ranges indicated above.

Example 2-1

1 A typical blusher makeup product is prepared using the
2 weight percent of the various ingredients indicated below,
3 including flouoroalkylpolysiloxane treated materials.

4 <u>Material</u>	5 <u>Weight Percent Range</u>	6 <u>Preferred</u>
	7 <u>Range</u>	8 <u>Composition</u>
9 Treated Talc	10 40 to 60	11 47.7
12 Bismuth Oxychloride	13 3 to 15	14 10.0
15 Mica	16 5 to 20	17 18.0
18 Zinc Stearate	19 0 to 10	20 4.0
21 Treated Titanium Dioxide	22 3 to 15	23 10.0
24 Treated Iron Oxides	25 1 to 5	26 2.0
27 Treated D&C Red 30 Al Lake	28 0 to 3	29 0.5
30 Treated Ultramarine Blue	31 0 to 3	32 0.5
33 Squalane	34 0 to 10	35 4.0
36 Mineral Oil	37 0 to 5	38 1.0
39 Isopropyl Palmitate	40 0 to 5	41 1.5
42 Preservatives	43 0 to 3	44 0.8

18

19 The manufacturing process comprises mixing the powder
20 ingredients, following by addition of the liquid/oil phase
21 and mixing well. The resultant mixture was then pressed
22 into a mold. Suitable results may be achieved by varying
23 ingredients within the ranges indicated above.

Example 3-1

1 The lipstick formula prepared using treated cosmetic
2 materials is shown in example 3-1 using the weight percent
3 of various ingredients, including fluoroalkylpolysiloxane
4 treated materials.

5	<u>Material</u>	<u>Weight Percent Range</u>	<u>Preferred</u>
6		<u>Range</u>	<u>Composition</u>
7	Triisocetyl Citrate	40 to 60	51.8
8	Ozokerite	0 to 10	6.0
9	Beeswax	0 to 10	6.0
10	Carnauba Wax	0 to 5	2.2
11	Candelilla Wax	0 to 5	1.0
12	Paraffin	0 to 5	1.5
13	Lanolin Alcohol	0 to 5	2.0
14	Castor Oil	5 to 15	11.9
15	Treated Nylon-12	0 to 5	2.0
16	Treated D&C Red 6 Ba Lake	1 to 3	1.6
17	Treated D&C Red 7 Ca Lake	1 to 3	1.7
18	Treated Iron Oxides	0 to 3	0.6
19	Treated Bismuth Oxychloride	0 to 2	0.4
20	BHT	0 to 2	0.5
21	Preservatives	0 to 2	0.3
22	Perfume	0 to 2	0.5
23			

24 The waxes and oils are heated to 85° C. The colors, which
25 have been roller milled previously in castor oil blends,

1 are added slowly and the mix is blended all together at
2 85° C until uniform then cooled to 70° C and molded.

Example 4-1

1 A waterproof mascara product was prepared using the weight
2 percent of various ingredients.

3 <u>Material</u>	4 <u>Weight Percent Range</u>	5 <u>Preferred</u>
	6 <u>Range</u>	7 <u>Composition</u>

8 Petroleum Distillate	9 35 to 55	10 45.5
------------------------	------------	---------

11 Polyethylene	12 3 to 10	13 8.0
-----------------	------------	--------

14 Treated Nylon	15 0 to 5	16 2.5
------------------	-----------	--------

17 Candelilla Wax	18 2 to 7	19 4.0
-------------------	-----------	--------

20 Beeswax	21 2 to 7	22 4.0
------------	-----------	--------

23 Lanolin	24 0 to 5	25 2.0
------------	-----------	--------

26 Genex 216	27 0 to 5	28 2.5
--------------	-----------	--------

29 Floral 83	30 0 to 5	31 2.5
--------------	-----------	--------

32 Bentone Gel SS71	33 10 to 20	34 16.5
---------------------	-------------	---------

35 Treated Iron Oxide Black	36 5 to 15	37 10.0
-----------------------------	------------	---------

38 Treated Ultramarine Blue	39 0 to 5	40 2.0
-----------------------------	-----------	--------

41 Preservatives	42 0 to 2	43 0.5
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44

45 In a closed mixing vessel, the liquid phase is heated to 75

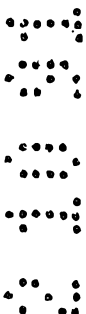
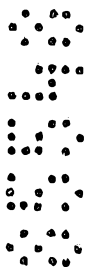
46 to 80° C. The waxes are added and the mix is blended until

47 uniform. The pigments are then added and mixture is

48 blended until uniform. The product is cooled to 30° C then

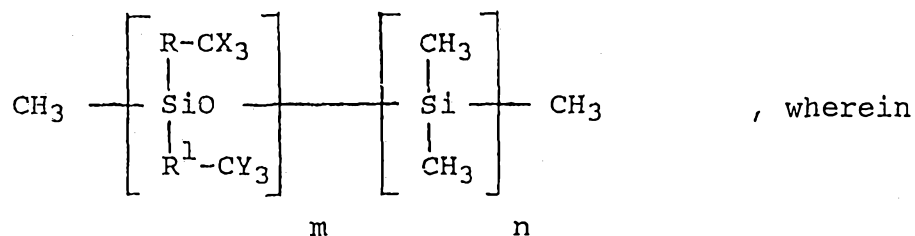
49 filled into a container.

While an illustrative embodiment of the invention has been described above, it is, of course, understood that various modifications will be apparent to those of ordinary skill in the art. Such modifications are within the spirit and scope of the invention, which is limited and defined only by the appended claims.



THE CLAIMS defining the invention are as follows:-

1. A cosmetic powder physically coated with from 0.01 to 30.0 weight percent of a trifluoroalkylpolysiloxane compound of the general formula:



m is an integer averaging from 1 to 1000;

n is 0 or 1;

R and R¹ are alkyl groups of from 1 to 10 carbons;

X is hydrogen or fluorine;

Y is hydrogen or fluorine where at least one of X and Y is fluorine; and the trifluoro groups may be randomly or uniformly disposed over the polysiloxane structure.

2. A cosmetic powder physically coated with a trifluoropolysiloxane compound as claimed in claim 1, wherein X is hydrogen only.

3. A cosmetic powder physically coated with a trifluoropolysiloxane compound as claimed in claim 1, wherein m is an integer averaging from 50 to 1000.

4. A cosmetic powder physically coated with a trifluoropolysiloxane compound as claimed in claim 3, wherein m is an integer averaging from 100 to 500.



11. A cosmetic powder according to claim 8 substantially as herein described with reference to any one of the Examples.

12. A cosmetic composition according to claim 9 substantially as herein described with reference to any one of the Examples.

DATED this TWENTY NINTH day of NOVEMBER 1993

MORRIS HERSTEIN
Applicant.

WRAY & ASSOCIATES,
Perth, Western Australia,
Patent Attorneys for the Applicant.

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ABSTRACT

An improved coating for cosmetic materials is disclosed. Fluoroalkylpolysiloxanes used as coatings for cosmetic powders provide the advantages of existing polysiloxane coatings plus provides advantages making the coated materials useful in emulsion systems and alkaline systems even when aged at high temperatures.

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