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Face and Body Powders

OF ALL THE COSMETICS used, face powder easily sits on the top of the list. It is equally popular among men as well as women. It was a common practice among women in the olden days to use a little cornstarch or flour on their faces to cover shine and for sometime just plain white powder was very popular. Technological developments in the manufacture of face powder lead to incorporation of colour and perfume. The modern day face powder is a product that adds very materially to personal beauty. People who are conscious about their looks apply it several times a day. Though the applications are small, the total consumption is high.

Due to misconception and also due to competitive and negative type of advertising, the use of face powder came under some criticism. Bismuth, lead or mercury contained in it were believed to be harmful. Furthermore, it was thought to be the cause of pimples and blackheads, that it gets into pores of the skin and clogs them, that orris root in particular which it contained, produced an allergy like hay fever, or asthma and the use of starch was harmful to the skin.

Modern face powders are manufactured by reputed companies using purified ingredients, approved colours and non-irritating perfumes. Inspite of daily applications none of these harmful effects have been suffered.

A face powder manufacturer's priority concerns the requirements of women. Fragrance is the first characteristic, because the first thing a woman does is to smell the powder while examining it. The nature of the fragrance should be such that it blends well with other perfumes and is not too predominant. It should also have lingering qualities both in the sealed or opened package and upon the skin. Next, the shade is very important as a large percentage of women buy face powder exclusively because of its shade. A large variety of shades are available with the approval of federal agencies like FDC (Food Drug & Cosmetic) or D&C (Drug & Cosmetic). As a rule, the manufacturer selects water insoluble colours, pigment and lakes for best results.

Apart from colour and odour a face powder must possess, slip, adhesion, fine particle size and covering power for consumer acceptance. Furthermore, it should be soft and fine to feel and have proper bulking powder. The various grades of face powder available are light, medium and heavy. Light and medium are the most popular covering powders.

The terms 'light', 'medium', and 'heavy' used for covering powder really have nothing to do with the density of the powder. These terms refer to the amount of powder needed to cover the same area of skin.

The types of skin which the face powder must cover are dry, normal, moderately oily, and very oily. Dry skin secretes very little moisture and no oil. Therefore it requires a powder with light covering power. Normal and moderately oily skin being more shiny due to secretion of moisture and oil requires a powder with more covering power. Very oily skins require a powder of heavy covering power due to high shine.

There are many women with generally dry skin and yet suffer from oily foreheads, oily noses or oily chins. In such cases, different powders of different covering powers are simultaneously used.

In addition to the covering powder the manufacturer must also provide suitable perfume, shades and attractive packaging.

Intelligent marketing strategy may recommend women to buy two colours—one for the day and the other lighter one for the night to counter the effects of artificial lighting.

PROPERTIES OF FACE POWDER

Let us try to understand the different properties of a face powder.

Covering Powder

One of the important functions of a face powder is to conceal the shine and minor skin imperfections. For this the primary requisite is covering power. Most raw materials possessing this particular property have it excessively and are somewhat lumpy and tend to drag when applied to the skin. It then becomes necessary to employ another material which serves the twin purpose of acting as a vehicle or diluent and at the same time facilitates easy application to the skin. Talc fits in suitably.

Next, adhesiveness of the skin must be sufficiently taken care of so as to enable the powder to remain on the skin for a considerable length of time. With magnesium, calcium and zinc stearates and sometimes with the addition of oil, this is achieved. Finally it must have an ingredient that acts as a binder for the colour and perfume and which facilitates distribution of both of them during manufacturing operation. Magnesium carbonate and precipitated chalk are used for this purpose.

A face powder must therefore possess the following properties.

(a) Covering power
(b) Slip
(c) Adhesiveness
(d) Absorption
(e) Colour and Perfume
(f) Should not give peach or mat like appearance after application
(g) Should not run off the face on motor riding
(h) Should not make the consumer apply many times on the face

The various weights of the face powder are proportional to the covering agent present in the formula. Basically a face powder can be made of any pure white, chemically inert powder that is sufficiently fine and exhibits one or more of the above properties.

The materials commonly used are given below.

Covering Power

Titanium dioxide, zinc oxide, zinc sulfide, lithopone, kaolin (colloidal), calcium sulfate, magnesium oxide, and starch.

Slip

Talc, starch, and metallic soaps.

Adhesiveness

Calcium, magnesium and zinc stearate, starch and colloidal clay (purified kaolin).

Absorption

Precipitated chalk, magnesium carbonate, starch, and purified kaolin.

A bulk of the commercial face powder constitutes the materials listed above. The principal materials are zinc oxide, titanium dioxide, talc, kaolin, the stearates, starch and chalk.

Rice starch is the ideal material possessing all the properties of face powder. However, it has not been favored in the USA due to its clinging properties which emphasizes light hairs on the lips and cheeks and its tendency to absorb moisture and smell although it does impart a much sought after smooth "peachy" effect. Nevertheless many leading French powders contain rice starch. Rice starch because of its drawback can be substituted by precipitated chalk. It imparts the same peachy texture and is not harmful. But ordinary grades do not spread or adhere evenly. Certain grades of processed chalk with all the required properties for a face powder can be used.

Chemists were apprehensive about using Barium Sulphate in view of the known toxicity of the other related barium salts.

Bismuth compounds are used in Europe although there is a disadvantage—they darken when exposed to light. Materials most

widely used in Europe are zinc oxide, purified kaolin, talc, the metallic stearates—zinc stearate in particular—precipitated chalk and magnesium carbonate. Titanium dioxide is a more recent addition and is gaining popularity. It is being preferred to zinc oxide because it has better covering power than the latter, besides being extremely fine, white and chemically inert. Any insoluble, inert, white powder (about 200 mesh) having the desired properties can be used in the formulation.

With a better understanding of the densities of the face powder and a thorough knowledge of the ingredients that constitute it we move on to the development of formulas. It will be observed that the constant factors in each formula are covering agents, adhesive agents and absorbent agents. The variable factor is talc, that varies from formula to formula depending upon the amount of colour and perfume introduced.

Formulas

Light Face Powder with Zinc Oxide for Popular Shades

Materials	*White*	*Peach*	*Rachel*	*Natural*	*Flesh*	*Ochre*	*Suntan*
(a) Zinc oxide	18.00	18.00	18.00	18.00	18.00	18.00	18.00
(b) Talc	69.00	67.52	68.00	68.06	68.64	64.84	58.69
(c) Zinc stearate	6.00	6.00	6.00	6.00	6.00	6.00	6.00
(d) Precipitated Chalk	6.00	6.00	6.00	6.00	6.00	6.00	6.00
(e) Perfume	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(f) Ochre	—	1.44	1.00	0.88	0.33	4.09	8.89
Brilliant pink lake	—	0.04	0.00	0.06	0.03	0.07	0.35
Burnt Sienna	—	0.00	0.00	0.00	0.00	0.00	1.07
	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Medium Face Powder with Purified Kaolin with Popular Shades

Materials	*White*	*Peach*	*Rachel*	*Natural*	*Flesh*	*Ochre*	*Suntan*
(a) Titanium dioxide	4.00	4.00	4.00	4.00	4.00	4.00	4.00
(b) Purified Kaolin	20.00	20.00	20.00	20.00	20.00	20.00	20.00
(c) Talc	66.00	64.52	65.00	65.06	65.64	61.84	55.69
(d) Magnesium stearate	3.00	3.00	3.00	3.00	3.00	3.00	3.00
(e) Magnesium carbonate	6.00	6.00	6.00	6.00	6.00	6.00	6.00
(f) Perfume	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(g) Ochre	—	1.44	1.00	0.88	0.33	4.09	8.89
Brilliant pink lake	—	0.44	0.00	0.06	0.03	0.07	0.35
Burnt Sienna	—	0.00	0.00	0.00	0.00	0.00	1.07
	100.00	100.04	100.00	100.00	100.00	100.00	100.00

Medium Face Powder with Titanium Dioxide for Popular Shades

Materials	*White*	*Peach*	*Rachel*	*Natural*	*Flesh*	*Ochre*	*Suntan*
(a) Titanium dioxide	5.21	5.21	5.21	5.21	5.21	5.21	5.21
(b) Talc	82.79	81.31	81.79	81.85	82.43	78.63	72.48
(c) Zinc stearate	5.00	5.00	5.00	5.00	5.00	5.00	5.00
(d) Precipitated Chalk	6.00	6.00	6.00	6.00	6.00	6.00	6.00
(e) Perfume	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(f) Ochre	—	1.44	1.00	0.88	0.33	4.09	8.89
Brilliant pink Lake	—	0.44	0.00	0.06	0.03	0.07	0.35
Burnt Sienna	—	0.00	0.00	0.00	0.00	0.00	1.07
	100.00	100.04	100.00	100.00	100.00	100.00	100.00

Heavy Face Powder with Zinc Oxide and Titanium Dioxide for Popular Shades

Materials	*White*	*Peach*	*Rachel*	*Natural*	*Flesh*	*Ochre*	*Suntan*
(a) Titanium dioxide	3.00	3.00	3.00	3.00	3.00	3.00	3.00
(b) Zinc oxide	20.00	20.00	20.00	20.00	20.00	20.00	20.00
(c) Talc	66.00	64.52	65.00	65.06	65.64	61.84	55.69
(d) Zinc stearate	4.00	4.00	4.00	4.00	4.00	4.00	4.00
(e) Precipitated Chalk	6.00	6.00	6.00	6.00	6.00	6.00	6.00
(f) Perfume	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(g) Ochre	—	1.44	1.00	0.88	0.33	4.09	8.89
Brilliant pink Lake	—	0.44	0.00	0.06	0.03	0.07	0.35
Burnt Sienna	—	0.00	0.00	0.00	0.00	0.00	1.07
	100.00	100.04	100.00	100.00	100.00	100.00	100.00

It may be noted that colours purchased in fairly large quantities ensure uniformity over a considerable period of time. Further,

1. All ingredients, with the exception of talc, are constant for all shades.
2. Chalk is a constant factor for all shades and weights.
3. The weight of the powder has no influence over the colour necessary to produce a given shade.
4. The light powder contains more zinc stearate than medium and heavy powders because less adhesiveness is required as the skin gets more and more oily.
5. Formulas employing zinc oxide as covering agent have talc content as constant.

This condition is desirable because it provides the heavy powder as much slip as a light powder. Many commercial powders have increased the zinc oxide content and decreased the talc content for greater covering power only to lose slip.

This problem can be rectified by increasing the covering power by the addition of a small quantity of titanium dioxide to zinc oxide. This will enable all the heavy powders to possess the same amount of slip although varying widely in covering power. The substitution

in part or whole of titanium dioxide for zinc oxide in heavy powders yields the same degree of covering power as an increased percentage of zinc oxide content in heavy powdets shows a tendency to cake.

The covering power of Titanium dioxide is about five times that of zinc oxide, which means achieving the desired effect with one fifth of the volume of zinc oxide used. However, because of the fact that it may not hold the colour as well as zinc oxide under the influence of the secretion of the face, it is advisable to mix zinc oxide.

Furthermore, as titanium dioxide does not dry as readily as zinc sulphide or zinc oxide, it is recommended that it be added to chalk in making the colour base with thorough milling.

Cold cream and mineral oil are added to face powder by some manufacturers, but it is difficult to say whether they serve any purpose, other than improving the adhesiveness of a poorly formulated face powder. In the case of cold cream, it is superfluous because the water phase evaporates leaving behind only the oil.

It is believed by some that magnesium carbonate adsorbes better then precipitated chalk and retains the perfume better. If both are used in the same formula, their ratio must be 2 : 1, and generally, the perfume oil is mixed with magnesium carbonate and the colour with chalk.

Increasing the stearate in the above indicated quantities leads to transparency of the powder after application.

RAW MATERIALS

It is of utmost importance to note that the quality of raw materials used for the manufacture of face powder should be of finest, whitest and highest quality.

The following grades of raw materials are recommended:

Zinc oxide	:	Finest, white grade.
Talc	:	Finest white, 99% through 200 mesh.
Zinc stearate	:	Whitest grade made from triple pressed stearic acid and odour free.

Precipitated chalk	:	Lightest, whitest grade.
Magnesium carbonate	:	Lightest, whitest grade.
Titanium dioxide	:	Finest white 200 mesh or better

MANUFACTURING METHODS

The perfume compound is mixed with a part of magnesium carbonate in an enameled white pail or a suitable vessel. The mixture is rubbed through a hand sieve with a stiff bristle brush once the oil is absorbed or it is run through a power brush sifter until the perfume is uniformly distributed. Then the colours are mixed in the same way with the rest of magnesium carbonate and chalk. The process is continued till no colour flakes show on a white paper when the mixture is rubbed out on it. A sample is kept aside for matching purpose.

The colour and perfume bases are then added to the rest of the raw materials into a mixer and mixed until they become uniform. It should be checked if it matches with the matching sample. Finally the powder is sifted at least to a 300 mesh product. Some manufacturers sift all the materials first before mixing in order to save cleaning of sieves.

Fineness of particle size has been described by terms like air floated, micronized and air spun, the process by which this condition is obtained. In air floating, the finished powder is passed through a mill equipped with a fan cyclone and a dust arrester to air separate the coarse particle to a predetermined height because they cannot be blown or floated, until they are adequately fine. A micronizer is a mill that grinds all the powder particles to a desired micron size (0.001 mm). The air spinning process employs a method wherein the powder is whirled around by a purified continuous air stream under great pressure. It is housed in a specially constructed cylindrical vessel. The powder particles knock against each other at an estimated speed of over thousand miles per hour. This collision at high speed reduces the particle size. At this point the smaller particles are sucked out through the use of a centrifugal force principle while the larger ones remain inside until they are divided further.

Processes like these render uniform distribution of perfume and colour and provide greater fluffiness. Some manufacturers in fact leave the finished powder in air tight bins for several weeks before filling it.

There is however, a second method of manufacture which employs two operations. First the preparation of a white powder base which is perfumed and stored in air tight tins to bloom. Secondly, sufficient quantities of colour bases are made at one time for several batches. This process speeds up the manufacture of face powder and also offers uniformity.

Formulas

White Base for Light Powders with Zinc Oxide

Zinc oxide	22.83
Talc	67.73
Zinc Stearate	6.25
Precipated chalk or Magnesium carbonate	2.25
Perfume	1.04
	100.10

White Base for Medium Powders with Zinc Oxide

Zinc oxide	26.04
Talc	65.46
Zinc stearate	5.21
Precipated chalk or Magnesium carbonate	2.25
Perfume	1.04
	100.00

With Titanium Dioxide

Titanium Oxide	3.00
Talc	88.50
Zinc stearate	5.21
Precipated chalk or Magnesium carbonate	2.25
Perfume	1.04
	100.00

White Base for Heavy Powders with Zinc Oxide and Titanium Dioxide

Titanium dioxide	3.00
Zinc oxide	21.25
Talc	68.29
Zinc stearate	4.17
Precipated chalk or Magnesium carbonate	2.25
Perfume	1.04
	100.00

Powder Bases

Peach (Also called nude, natural)

Precipitated chalk	59.0
Golden ochre	40.0
Brilliant pink lake	1.0
	100.00

Use 5 parts and 95 parts white powder.

Rachel

Precipitated chalk	75.0
Golden ochre	25.0
	100.00

Use 4 parts and 96 parts white powder

Flesh

Precipitated chalk	90.0
Golden ochre	5.0
Brilliant pink lake	5.0
	100.00

Use 4 parts and 96 parts white powder

Naturelle

Precipitated chalk	75.0
Golden ochre	24.0
Brilliant pink lake	1.0
	100.00

Use 4 parts and 96 parts white powder

Ochre

Precipitated chalk	54.0
Golden ochre	3.0
Brilliant pink lake	43.0
	100.00

Use 8 parts and 92 parts white powder

Suntan

Precipitated chalk	36.0
Golden ochre	58.0
Brilliant pink lake	6.0
	100.00

Use 9 parts and 91 parts white powder

ADDITIONAL FORMULAS

Talc	40.0	56.0
Colloidal clay	20.0	20.0
Zinc oxide	20.0	10.0
Zinc stearate	—	10.0
Precipitated chalk	15.0	—
Magnesium carbonate	5.0	4.0
	100.0	**100.0**
Talc	75.0	—
Zinc oxide	20.0	—
Zinc stearate	5.0	—
	100.0	
Talc	60.0	80.0
Zinc oxide	10.0	15.0
Zinc stearate	20.0	4.0
Magnesium carbonate	10.0	1.0
	100.0	**100.0**
Talc	69.0	82.79
Zinc oxide	18.0	—
Titanium dioxide	—	5.21
Zinc stearate	6.0	5.0
Precipitated chalk	7.0	7.0
	100.0	**100.0**

Talc	74.5	30.0
Zinc oxide	10.0	20.0
Titanium dioxide	10.5	5.0
Colloidal clay	—	40.0
Precipitated chalk	5.0	—
Magnesium stearate	—	5.0
	100.0	**100.0**
Zinc stearate	6.0	—
Talc	40.0	15.0
Colloidal clay	45.0	25.0
Titanium dioxide	4.0	5.0
Magnesium stearate	—	10.0
Magnesium carbonate	5.0	—
Precipitated chalk	—	45.0
	100.0	**100.0**
Talc	20.0	38.0
Colloidal clay	20.0	10.0
Zinc oxide	15.0	12.0
Magnesium stearate	5.0	13.0
Magnesium carbonate	10.0	2.0
Precipitated chalk	30.0	25.0
	100.0	**100.0**
Talc	15.0	67.0
Colloidal clay	35.0	20.0
Titanium dioxide	10.0	4.0
Magnesium stearate	5.0	3.0
Magnesium carbonate	5.0	6.0
Rice starch	30.0	—
	100.0	**100.0**
Talc	52.5	67.0
Colloidal clay	15.0	—
Titanium dioxide	—	3.0
Zinc oxide	12.0	20.0
Zinc stearate	7.0	4.0
Magnesium carbonate	2.5	—
Precipitated chalk	11.0	6.0
	100.0	**100.0**

Talc	51.5	51.5
Titanium dioxide	3.0	5.0
Zinc oxide	12.0	12.0
Colloidal clay	13.0	11.0
Magnesium carbonate	2.5	2.5
Precipitated chalk	11.0	11.0
Zinc stearate	7.0	7.0
	100.0	**100.0**
Talc	31.5	46.8
Colloidal clay	31.5	18.0
Zinc oxide	20.0	13.5
Titanium dioxide	—	4.5
Zinc stearate	8.0	8.1
Precipitated chalk	6.0	4.5
Magnesium carbonate	1.0	4.5
Mineral oil	2.0	0.1
	100.0	**100.0**

VARITIES IN FACE POWDERS

Compact powders, cake make-up powders, cream powders and liquid powders are closely related to face powders in composition and that is why we intend to discuss them at this point. Cosmetic stockings are similar to liquid powders and they are also being discussed here.

As we have already seen slip, adhesion, covering power, colour and odour are important properties of a good commercial face powder. This is equally true of compact powder which can be considered as a face powder moulded into a tablet. The processes involved in compact powders are very similar to those of tablet making in the pharmaceutical field. Methods of manufacture of cake rouge and compact powder are essentially the same, since rouge is merely a more highly coloured tablet of compact powder. The equipment used is also the same.

Wet compression method, dry compression method and wet moulding method, are the three common processes used for tablet face powder.

Wet Compression Method

The powder ingredients are mixed thoroughly just as in the manufacture of face powder. Fine powders cannot be readily compressed into a tablet. Further processing is necessary to form granules which is done by melting down with a liquid and binder and thorough mixing until a pasty mass is obtained. It is granulated by passing the damp mass through 1/8th inch mesh screen tacked over a frame through a specially built granulator. The wet granules are spread on trays and dried. Dried granules are then compressed by a tablet or compact press.

Dry Compression Method

In this method the powder base colour and perfume are milled by a pulverizer or ball mill. It is then moistened by a binding solution and mixed thoroughly until granular. These granules are then compressed and the finished cakes are dried in a drying cabinet at about 140 °F.

Wet Moulding Method

In this method all the ingredients are made into a wet, heavy paste. The paste is poured or pressed by rolling into lubricated nickel moulds and is allowed to dry. Dextrin or gum arabic adhesive is painted over the surface of the rouge cakes. Then glass, porcelain or metal plates are pressed down on the glued surface of the rouge cakes. When the cakes are dry they adhere to the plates.

A compact must be neither too hard nor too soft. The powder should come off easily on to the puff and the cake must not get hard and shiny. The basic ingredients used are the same as in face powder. The colours are mineral pigments, lakes and FD&C colours which are also similar to those used in face powder. The stearates make good binders and spreading agents. However, talc should be restricted to 50%, as more will cause cracking of cakes. The binding solution must be made in bulk quantities and the viscosity standardized. The binding solution is made from materials like gelatin, gum tragacanth, gum acacia, gum karaya, methyl cellulose, quince seed, rosin, Irish moss and occasionally lanolin dissolved in ether is added. The binding solution requires a preservative.

A typical binding solution formula is given below:

	Parts or %
Gum tragacanth mucilage (2%)	20.0
Quince seed mucilage (2%)	10.0
Gelatin mucilage (3%)	10.0
Rosin tincture	1.0
Water	58.8
Methyl *p*-hydroxy benzoate	0.2
	100.0

A typical base powder formula is

	Parts or %
Talc (300 mesh)	40.0
Zinc oxide	20.0
Zinc stearate	6.0
Rice starch	10.0
Magnesium carbonate	3.0
Colloidal clay	10.0
Colour pigment	10.5
Perfume	0.5
	100.0

To make a finished compact from these mix all the ingredients of the base formula together and run through a pulverizer, or a ball mill. Moisten the base powder with a sufficient quantity of the binding solution to make a suitable granulation for the type of process being followed, compress and dry the cakes.

Other formula for base powder follows:

	Parts or %
Talc California	62.0
China clay	15.5
Zinc oxide	7.5
Zinc stearate	7.5
Gum Arabic mucilage q.s. to granulate	
Perfume	
Lake colour	7.5
	100.0

Compact Powder Base No. 1

	% or Parts
Kaolin	40
Talc	40
Magnesium carbonate	10
Rice starch	10
Perfume	q.s
Anhydrous lanolin	q.s
Ether	q.s

Mix the powdered materials in a mixer together with the proper amount of lake colours. Granulate with the lanolin ether solution and binding solution.

Cake Make-up

In the manufacture and formulation of cake make-up, great care must be exercised to keep the formulas and processing standardized. The mixing operations, drying temperatures and fineness of powders must be kept uniform, else the result will be a substandard product. The use of cake make-up produces a flat, smooth, lasting finish to the skin, which is not achieved by any other cosmetic. It also conceals minor skin defects.

The composition of cake make-ups consists of ingredients used in face powder like talc, chalk, kaolin colloidal clay, titanium dioxide and zinc oxide, besides light or heavy mineral oils, vegetable oils, pigments, perfumes, water, humectants like glycerol and glycols, binding and emulsifying agents.

A well-formulated cake will come out easily with a moistened tissue or sponge as an emulsion and should cover the skin uniformly. Some products when still moist are blended into the skin with finger tips or cleansing tissues and others are left to dry on the skin. Whatever may be the technique of application, the film produced should not "draw" the skin by drying out quickly, remain on the skin throughout the day, repel moisture caused by perspiration, and be easily removed by washing with soap and water.

In order to obtain these properties the study of certain mineral earths will help us.

Titanium dioxide & zinc oxide: Impart covering and masking properties to the cake.

Kaolin and colloidal clay: Help as binders in compressing but excessive usage results in absorption of too much of water causing the film to pile up and become uneven.

Chalk: Regulates easy brushing off or blending with skin.

Talc: Is stable filler. But if used in excess shine will be imparted.

It is imperative for the chemist to combine these mixed earths on the other face powder ingredients judiciously to obtain the desired effect.

Coming to other ingredients, the pigments selected should not "bleed" during perspiration. Normally water insoluble lakes and mineral pigments are preferred. The oils used may be light or heavy mineral oils or vegetable oils and their function is to provide the desired oiliness. Care should be taken to prevent rancidity in vegetable oils by adding anti-oxidants. Further, the right choice of emulsifiers and right proportions must be used with mixed powders so as to prevent degreasing of skin.

The manufacturing process of cake make up differs when compared to compacts. First the powders are mixed. The water–oil emulsion and humectant are subsequently added and the mixture is passed through a roller mixer for greater homogeneity. The resultant paste is then granulated and pressed into cakes.

Liquid Cream Powders or "Night Whites"

Liquid and cream powders are often called "night whites" and are used for evening wear to counter the glare of electric lights. They are applied to face, neck and arms and serve to blend the colours of the skin exposed only in the evening dress due to their high opacity.

No. 1 Liquid Powder

Colloidal clay	18.0
Titanium dioxide	2.0
Glycerin	8.0
Water	71.5
Perfume	0.5
	100.0

No. 2 Liquid Powder

Colloidal clay	8.0
Precipitated chalk	5.0
Zinc oxide	10.0
Glycerin	5.0
Alcohol	5.0
Orange flower water	67.0
	100.0

No. 3 Liquid Powder

Talc	10.0
Colloidal clay	5.0
Titanium dioxide	5.0
Glycerin	10.0
Rose Water	64.5
Alcohol	5.5
Perfume	q.s
	100.0

No. 4 Liquid Powder

Colloidal zinc oxide	6.0
Precipitated chalk	8.0
Colloidal clay	3.0
Zinc stearate	2.0
Glycerin	3.0
Witch hazel	10.0
Orange flower water	68.0
	100.0

No. 5 Liquid Powder

Titanium dioxide	5.0
Precipitated chalk	8.0
Colloidal clay	5.0
Glycerin	3.0
Rose Water	79.0
	100.0

No. 6 Liquid Powder

Colloidal zinc oxide	8.0
Colloidal clay	5.0
Precipitated chalk, heavy	6.0
Glycerin	5.0
Witch hazel	10.0
Orange flower water	66.0
	100.0

No. 7 Liquid Powder

	% or Parts
Heavy mineral oil	55.0
In which is dissolved by agitation and heat	
Magnesium oleate	2.5
Titanium dioxide	25.0
Light chalk	3.75
Talc	6.25
Perfume	2.25
Red iron oxide	3.0
Light ochre	2.25
	100.0

Stir all other ingredients into the oil solution of magnesium oleate and allow to stand overnight before filling. In addition to the materials used here, barium sulphate, bismuth subnitrate, bismuth subcarbonate, lithopone and similar materials are sometimes employed. Some manufacturers add small quantities of starch or

saponin in order to enhance adherence and stability. However, these additives must be carefully used so that the product is neither too sticky nor slow in drying out.

Manufacturing Methods

The powdered ingredients and colour, if any is used, are mixed together in a powder mixer. The liquid ingredients on the other hand are blended in a tank preferably fitted with an agitator. The powder is slowly introduced into the blended liquids with agitation. Once the powder is completely added, the mixture is stirred for half an hour. The finished product is filled with the stirrer in motion to insure uniform distribution of the powder in the liquid phase of the preparation, until the tank is emptied.

No. 8 Cream Powder

Vanishing cream	70.0
Talc	24.0
Titanium dioxide	5.5
Perfume	0.5
	100.0
Colour to suit	

Make the vanishing cream in the usual way. Mix the talc and titanium dioxide and colour and perfume. Add the cream and then run the entire mass over a roller mill.

No. 9 Cream Powder

Glyceryl monostearate	10.0
Glycerin	3.0
Heavy mineral oil	5.0
Spermaceti	5.0
Stearic acid	2.0
Caustic potash U.S.P	0.1
Water	48.4
Perfume	0.5
Titanium dioxide	6.0
Talc	20.0
	100.0

Dissolve the caustic potash in water then add all the rest of the ingredients with the exception of the perfume, but include the colour. Bring the mixture to a boil with constant stirring. Continue stirring until all the materials have melted and have become homogeneous. Shut off the heat and continue stirring until mass is cooled, then add the perfume. Run the mass through a roller of ointment mill if the colour does not come out uniformly.

No. 10 Cream Powder

Glycerin	42.0
Stearic acid	10.0
White face powder	42.0
Distilled water	4.0
Potassium hydroxide U.S.P	1.5
Perfume	0.5
	100.0
Colour to suit	

Dissolve the potassium hydroxide in water, melt the stearic acid and add the caustic solution. Mix until saponification is complete. Heat the glycerin; add the face powder and colour and mix until all lumps have disappeared. Then incorporate the first mixture, add the perfume and mix again. Run the product through an ointment mill to ensure smoothness and uniformity of colour distribution. Lake colours are best for this type of product.

TOILET POWDERS

Toilet powders comprise of talcum powder, dusting powder or body powder or after bath powder, after shave powder and baby powder.

Talcum powder is the most important of these powders. As the name implies, it mainly consists of talc and other ingredients. They may not be used in the same large proportions as already discussed under face powders because users of talcum powder are looking for the characteristic slip of talc. Perfume and colour have large bearing on the sales of talcum powder, although white and natural

shades sell the most. In some cases, camphor or boric acid are added; in such cases where medicinal claims are made by the manufacturers, such a powder falls under the category of drugs and not cosmetics.

Dusting powder, after shave powder, and baby powder are closely related to talcum powder. They have more or less the same composition as talcum powder. Dusting powder is sold with a puff to apply the same on person. After shave powder consists of talc with the addition of colour and other mineral ingredients so as to enable it to go on smoothly, cling to the face with less sheen and match the colour of skin. Baby powders are normally less heavily perfumed (for obvious reasons) and coloured. Boric acid because of its soothing and slightly antiseptic properties, is the favorite choice not only in baby powders but all toilet powders.

The manufacturing method for toilet powders is generally the same as face powders.

The following are formulas of talcum, body, and after-shave powders.

Talcum Powders

	No. 1
Talc	71.0
Precipitated chalk	20.0
Zinc stearate	3.0
Boric acid	5.0
Perfume	1.0
	100.0

	No. 2
Talc	54.0
Precipitated chalk	40.0
Zinc stearate	3.0
Boric acid	2.0
Perfume	1.0
	100.0

	No. 3
Talc	79.0
Magnesium carbonate	15.0
Boric acid	3.0
Magnesium stearate	2.0
Perfume	1.0
	100.0

	No. 4
Talc	19.0
Calcium carbonate	60.0
Rice starch	15.0
Boric acid	5.0
Perfume	1.0
	100.0

After Shave Powder

	No. 5
Talc	71.5
Titanium dioxide	3.0
Zinc stearate	4.0
Precipitated chalk	20.0
Golden ochre	0.5
Perfume	1.0
	100.0

Body Powder

	No. 6
Talc	50.0
Kaolin	30.0
Boric acid	2.0
Precipitated chalk	17.0
Perfume	1.0
	100.0

	No. 7
Talc	50.0
Precipitated chalk	25.0
Magnesium carbonate	20.0
Zinc stearate	2.0
Boric acid	2.0
Perfume	1.0
	100.0

	No. 8
Talc	68.0
Precipitated chalk	15.0
Colloidal clay	5.0
Boric acid	3.0
Magnesium stearate	3.0
Magnesium carbonate	5.0
Perfume	1.0
	100.0

	No. 9
Talc	70.0
Kaolin	13.0
Magnesium stearate	8.0
Precipitated chalk	5.0
Magnesium carbonate	3.0
Perfume	1.0
	100.0

	No. 10
Talc	70.0
Colloidal clay	11.0
Precipitated chalk	10.0
Zinc stearate	5.0
Boric acid	3.0
Perfume	1.0
	100.0

Baby Powders

	No. 11
Talc	63.63
Kaolin	20.0
Zinc stearate	5.0
Precipitated chalk	5.0
Boric acid	6.0
Oxyquinoline benzoate	0.12
Perfume	0.25
	100.0

	No. 12
Talc	66.75
Magnesium carbonate	5.0
Colloidal clay	10.0
Magnesium stearate	5.0
Boric acid	10.0
Titanium dioxide	3.0
Perfume	0.25
	100.0

	No. 13
Talc	54.0
Kaolin	20.0
Zinc stearate	5.0
Precipitated chalk	11.0
Boric acid	10.0
	100.0

There are other cosmetic powders such as deodorant powders, foot powders, hair powders, suntan preventive powders, and tooth powders, which can be covered under toilet powders. But as these products have special properties they are categorized and dealt with separately.