

Face Powders

Face powders are one of the basics of the cosmetic industry and has been used since ancient times by both men and women. A variety of modifications in formulation and manufacture of powder have been carried out by the cosmetic chemists. The function of face powder is to mask the minor, visible imperfections even after applying moisturiser and concealer.

The modern face powders are a blend of several constituents which impart the following essential characteristics of good product:

1. It should have good covering power that is the ability to mask skin defects like skin shine, enlarged pores, blemishes etc.
2. It should adhere to the skin to avoid frequent re-powdering.
3. The powder must be absorbent without changing its appearance on the skin and should be capable of absorbing the skin secretions.
4. It should have sufficient slip to enable the powder to be applied on the skin with suitable applicator, such as a puff or brush, without dragging.
5. It should impart a velvety, peach like finish to the skin that is it has good bloom.

Ideal Characteristics for Raw material

1. The material used in the manufacture of face powder should not be too hard. If the material is crystalline in nature it should not have sharp edges otherwise it may cause damage to skin.
2. It should be non-irritating, non-toxic and chemically neutral.
3. It should be compatible with other ingredients.
4. If in liquid or suspension form it should be soluble in suitable solvent in desired conditions respectively.
5. Water is used in preparation of cosmetics is not normal tap water. It must be ultrapure that is free from microbes, toxins, heavy metals and other pollutants. The water used must be referred as double distilled water / purified water or aqua water.

Raw Materials

The choice of the basic ingredients used in the formulation of face powder is narrow and limited, each ingredient playing a significant role in the final powder formulation.

The covering power is achieved by using materials like light Kaolin, zinc oxide, and titanium dioxide. Only the finest qualities of zinc oxide are used, since lower grades contain gritty particles. It also possesses antiseptic property, and is used to clear up minor skin disorders.

Adhesiveness is obtained by inclusion of talc, kaolin and addition of some water insoluble metal soaps like Zinc and Magnesium stearate. Zinc stearate of highest quality should be used to avoid rancidity and disagreeable odour. Metal soaps provide good adhesion property, water repellancy and render the final powder to be soft and fluffy. Kaolin has good covering power, grease resistance, perspirant absorbance and soothing properties. Kaolin is a high density compound and is used in the formulations to make the product fluffy to control its bulk.

Other materials that can be incorporated to improve adhesion of powders to the skin include emollients such as cetyl or stearyl alcohols and Glycerol monostearate. Magnesium myristate, petroleum jelly or mineral oil can normally added at lower concentrations between 0.5-2.0 percent.

High absorptive capacity material for perspiration and secretion from skin like kaolin, starch, CaCO_3 , MgCO_3 are recommended to remove inherent sheen of talc. These are required in lower amount (15-20%) as excessive use may have adverse effect on slip property of powder. Magnesium trisilicate have higher water and oil absorption properties and may be used as perfume carriers.

The slip property i.e. the quality of easy application and spreading of a face powder, is to give smooth and uniform feeling on the skin.

Talc (Magnesium Silicate) is the most common ingredients with the desired Slip property. However, it must be Combined with other materials to overcome its deficiencies in covering power and moisture absorption. Chemically, talc is hydrated magnesium Silicate.

The peach-like effect on the skin is known as bloom. The bloom effect can be incorporated by adding chalk, rice starch and powdered Silk powder. Silk powder is pulverised fibroin crystalline material extracted from normal Silk by degumming, followed by partial hydrolysis. Silk has good absorption characteristics for both water and aromatic Compounds, the latter property helps in extending the life of perfumed powder.

The choice of different shades of color for face powder depends on the type of base used in the powder. Various inorganic pigments or organic lakes, iron oxide are available to impart different color. Lakes have the disadvantage for having the instability towards light which is not found in inorganic pigments.

Commonly used Color lakes

S.N	Name of lake	Number	Colour
1.	Aluminium lake	DTC Red NO. 4	Orange
2.	Barium lake	DTC Red NO. 9	Red
3.	Aluminium lake	DTC Red NO. 5	Yellow
4.	Calcium lake	DTC Red NO. 7	Red
5.	Barium lake	DTC Red NO. 17	Orange
6.	Aluminium lake	DTC Red NO. 19	Red
7.	Barium lake	DTC Red No. 12	Red

The selection of the perfume and its effective dispersion within the face powder is of extreme importance. It is of vital importance that the perfume used should be non-irritating, stable, volatile and compatible with all the powder ingredients so as to avoid the problems with rancidity and discoloration of final product. The concentration of the perfume should range between 0.2-1.0%, at too lower amount. It may not be perceptible and may not mask the odor of the raw materials. A too high perfume concentration may result in overpowering odor and may also cause lumping of the powder. It is important the perfume should be homogeneously dispersed in the face powder. The fragrance may be mixed in one of the raw materials which have good absorbant property (magnesium carbonate) or it may be spread into the entire batch.

Formulation.

A face powder formula should be adapted to the characteristics desired and the type of skin to be covered. In general, the face powder can be classified into three types: light, medium and heavy. The characterisation refers to the covering power of the powder rather than its density. Dry skin requires a powder of slight covering power - a 'light' powder. Normal or moderately oily skins require a somewhat higher coverage - a 'medium' powder. Extremely oily skins, which have a great deal of sheen, require a good covering powder - a 'heavy' powder.

Face Powder

Formula 1

S.No	Ingredients	% (W/W)
1	Talcum Powder	54.0
2	Kaolin	35.0
3	Precipitated chalk	3.5
4	Zinc oxide	7.0
5	Perfume	Q.S
6	Colour	Q.S

Preparation

All the solid white base ingredients are mixed in stainless steel ribbon type blender, powdered and passed through Sieve no. 120. The other ingredients in the finely divided form are incorporated in the required quantities and thoroughly mixed to form a uniform mixture. Perfume and Colour are added in the specified quantity, mixed thoroughly and product is preserved in container.

Formula 142 for light face powder

S.No	Ingredients	White % (W/W)	Peach % (W/W)
1	Talc	69.00	67.52
2	Zinc oxide	18.00	18.00
3	Zinc stearate	6.00	6.00
4	Precipitated chalk	6.00	6.00
5	Brilliant Pink lake		0.04
6	Perfume	1.00	1.00
7	Ochre	-	1.44

Formula 1 and 2 for medium face powders

S.No	Ingredients	white % (W/W)	Peach % (W/W)
1	Talc	66.00	64.52
2	Titanium Dioxide	4.00	4.00
3	Magnesium Stearate	3.00	3.00
4	Magnesium Carbonate	6.00	6.00
5	Purified Kaolin	20.00	20.00
6	Brilliant Pink lake	-	0.04
7	Perfume	1.00	1.00
8	Ochre	-	1.44

Formula 1 and 2 for Heavy Face Powder

S.No	Ingredients	white % (W/W)	Peach % (W/W)
1.	Talc	66.00	64.52
2.	Zinc Oxide	20.00	20.00
3	Titanium oxide	3.00	3.00
4	Zinc Stearate	4.00	4.00
5	Brilliant Pink lake	-	0.04
6	Precipitated chalk	6.00	6.00
7	Perfume	1.00	1.00
8	Ochre	-	1.44

Liquid Cream Powders

They are called night whites and are used for evening and night wear to counter the glare of light. They are applied to exposed skin of face, neck and arms to blend with the colour of skin.

Formula 1

S.No	Ingredients	% (W/W)
1.	Water	71.50
2	Colloidal Clay	18.00
3	Titanium Oxide	2.00
4	Glycerin	8.00
5	Perfume	0.50

Method of Preparation

The powdered ingredients and color, if any, used are mixed together in a powder mixer. All the liquid components are blended in a separate container fitted with an agitator. The powder mixer is slowly added to the blended mixture with constant stirring for an hour to ensure uniform distribution of powder in liq mixture.

Compact face Powder

A Compact face powder is a dry powder which is compressed in the form of a cake and is usually applied with powder puff without crumbling it. It is different from face powder as a binding agent is added and pressure is applied to form a hard glazed cake which does not disintegrate on used with the applicator.

A number of binders are employed in face powder.

- * Dry binders such as metallic stearates (Zinc, Magnesium) which require increased pressure for firm compacting.
- * Oil binders such as mineral oil, Isopropyl myristate and Lanolin
- * Water Soluble binders are traditional gum solution, natural plant like gum arabic, Karaya etc. A small amount of humectant and preservatives is usually added to water soluble binder solutions.
- * Synthetic binders like PVP (polyvinylpyrrolidone), Methyl cellulose and Carboxymethyl cellulose.

* Water repellent binders such mineral oils, fatty esters, stearyl alcohol, paraffin wax, microcrystalline waxes and lanolin derivatives aid in the formation of smooth solidly pressed cake. Inclusion of wetting agents helps to uniformly distribute the moisture throughout the powder.

* Oil in water emulsion binder is used to overcome the distribution problems encountered with the water repellent material.

Emulsifiers such as triethanolamine stearate, non-ionic emulsifier and Glyceryl monostearate are used in this type of binder.

Formula 1

S.No	Ingredients	% (W/W)	% (W/W)
1	Gum Arabic	1	-
2	Gum Tragacanth	-	2
3	Glycerol	5	-
4	Glucose	-	5
5	Water	94	93
6	Preservatives	QS	QS

Formula 2

S.No	Ingredients	% (W/W)
1	Gum Tragacanth	2
2	Glyceryl Monostearate	6
3	Mineral oil	4
4	Sorbitol	5
5	Water	83
6	Preservative	QS

Talcum Powder

The toilet powder preparation comprises of the talcum powder, dusting powder, baby powder and after shave powder. The main product Talcum powder consists mainly of Talc mixed with other ingredients like boric acid for antiseptic properties, Colour and perfume.

Formula 1-4

S.NO	Ingredients	%(N/W)	%(W/W)	%(N/W)	%(W/W)
1	Talc	41	79	54	19
2	Precipitated Chalk	20	15	40	7
3	Zinc Stearate	3	—	3	—
4	Boric Acid	5	3	2	5
5	Perfume	1	1	1	1
6	Magnesium Stearate	—	2	—	—
7	Calcium Carbonate	—	—	—	60
8	Rice Starch	—	—	—	15

Baby Powder

The skin of babies is quite different from that of adults histologically and physiologically. It is very prone to infection and irritation especially the urinary area. The wet diapers are the source of bacterial growth and therefore modification in various cosmetic products has to be incorporated for the use of infants. In baby Talc is the main component. Calcium Undecylate and hyamine 10-X are used as antifungal and antibacterial purpose and activator respectively. Coloring agents are not added.

Formula 1-4

S.No	Ingredients	%(W/W)	%(W/W)	%(W/W)	%(W/W)
1	Talc	99.75	92.25	84.70	49.70
2	Lithium Stearate	-	2.50	-	-
3	Kablen	-	5.0	-	-
4	Hyamene 10-X	-	-	0.05	0.05
5	Perfume	0.25	0.25	0.25	0.25
6	Calcium Undecylenate	-	-	15.00	-
7	Dry flu	-	-	-	50.00