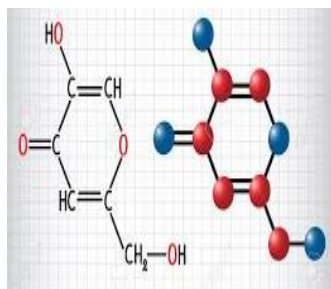


## FORMULATION OF KOJIC ACID ENCAPSULATED ACTIFILMS FOR SOAP

**Actifilm™:** Actifilms are films made up of Hydroxypropylmethyl cellulose which is a chemically modified cellulose polymer. The dissolving film delivery vehicle is just a thin flexible sheet of polymer in which an active ingredient has been incorporated. These actifilms magically disappear upon rubbing by delivering dry actives i.e. they are visually dry but soften easily when it gets in contact with water, thus they have the amazing properties to soften in the formula making them more malleable and ready to disintegrate when pressure is applied. Umang Pharmatech manufactures **Actifilm™ i.e AF** exclusively available in shapes and varieties of colors available for personal care applications.

**KEYWORDS:** Encapsulated films, fast dissolving films, films for special effects, HPMC films, dissolving films for soap, water soluble films for decoration.

### **KOJIC ACID :**



Kojic acid is made from different types of fungi. Mostly it has been isolated from the fungus *Aspergillus oryzae*. Because of its

ability of Kojic acid to really penetrate the layers of your skin and stop the production of melanin, kojic acid is used as a skin lightening agent i.e. usually sought out as a spot-fading treatment, anti aging treatment. Kojic acid also has antifungal properties, useful in treating fungal infections of the skin.

### **INCI NAME:**

Kojic acid

### **WHY ENCAPSULATED KOJIC ACID?**



Encapsulation Technology used in the development of cosmetic formulations that more stable, more effective and with

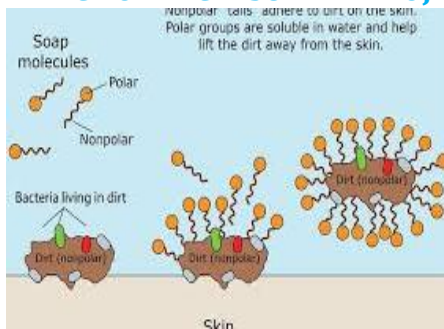
improved sensory properties. Encapsulation has the ability to enhance the oxidative stability, thermostability, shelf-life, and biological activity of Kojic acid. Kojic acid is chemically unstable and susceptible to oxidative deterioration and loss of volatile compounds, especially when exposed to oxygen, light, moisture, and heat. Thus Kojic Acid is encapsulated so as to effectively balance skin tones, and freckles caused by sun exposure, aging, and cutaneous hyperpigmentation.

**KEY PROPERTIES OF ACTIFILMS:**

- Non GMO & Paraben free
- Easy to handle at the industrial scale
- Natural ,Non toxic and Non irritant , and non-allergenic properties

- Gentle and effective on skin with rapid dispersion and excellent uniformity
- Available in different shapes & colors
- Provides visual effects and activates four senses you can see, smell, taste & touch it and disappears on rubbing the product.

**EFFECT OF ENCAPSULATED KOJIC ACID IN SOAP**



Soap contains Hydrophilic end and Hydrophobic properties. The first one is the hydrophilic end which dissolves water and is attracted to it whereas the second one is the hydrophobic end that is dissolved in hydrocarbons and is water repulsive in nature. On application, soap solution appears cloudy forming a colloidal solution. Thus cleaning body and rinsing the dirt away.

Active ingredient like natural fragrance and disinfectant agents are added into soap. Active Ingredient like Kojic acid when encapsulated in soap along with fading of dark spots and blemishes of the skin and cleansing body it provides antibacterial benefits by decreasing the chances of bacterial skin infections . Encapsulated Kojic acid is a UV protector, suppressor of hyperpigmentation in human and restrainer of melanin formation and due to its tyrosinase inhibitory activity ,the decreased melanin production has a lightening effect on the skin.

**FORMULATION PROCEDURE:**

**Step I:** Add components to water.

**Step II:** Heat to 70°C.

**Step III:** Blend until homogeneous; cool to 50°C.

**Step IV:** Adjust pH to 7.0-7.5 with Citric Acid.

**Step V:** Add DM and Fragrance.

**Step VI:** Cool to room temperature. Encapsulated Kojic acid actifilms are added at the end of manufacturing at moderate temperature and at slow stirring.

**DOSAGE:** 0.2 % for visual effect and up to 10 % for colour or active delivery

**STORAGE:** Temperature between 5° C - 25°C

| FORMULATION TIP             |             |
|-----------------------------|-------------|
| SOAP                        |             |
| Ingredients                 | Qty (%)     |
| Potassium Cocoate           | 25.0        |
| Disodium Cocoamphodiacetate | 20.0        |
| Lauramide DEA               | 2.0         |
| Glycol Stearate             | 1.0         |
| DMDM Hydantoin              | qs          |
| DI,Water,Fragrance          | qs to 100.0 |
| Actifilms with Kojic acid   | 0.2%        |

**Different Shapes of Actifilms**



Golden colour Cross shape



Mix colour Star shape



Golden colour Snowman shape