

DIRECT INCORPORATE OF VITAMIN E VS ENCAPSULATED VITAMIN E FILMS FOR BATHBOMB AND SOAP FORMULATION

Actifilms™ AF is made up of Hydroxypropyl Methyl Cellulose which is a chemically modified cellulose polymer. HPMC is a water soluble synthetic polymer which was used as film former. It is a thin, flexible sheet of polymer in which an active ingredient has been incorporated. Films are rapidly disintegrate and also have greater stability and shelf life.

BENEFITS OF VITAMIN E:

- Vitamin E (α Tocopherol) easily absorb into the skin. It reduced the skin damage cause by UV radiation. It helps to reduce the brown spots on the face.
- Vitamin E (α Tocopherol) effective in reducing dark circles and wrinkles of the lower eyelids.
- Vitamin E (α Tocopherol) use for high pigmentation, minimize the production of melanin and lighten skin.

WHY ENCAPSULATED α TOCOPHEROL ?

Encapsulation Technology used in the development of formulations that more stable, more effective and with improved sensory properties. Vitamin E (α Tocopherol) is reactive in nature. It is very unstable compound. Vitamin E (α Tocopherol) rapidly degrades from oxygen, moisture, temperature, and light, which results in decreased stability, storage condition and desired release. Therefore to overcome the all the problems encapsulation method is used to enhance to storage and stability Vitamin E (α Tocopherol).

UNIQUE FUNCTIONS:

- Easy to handle at the industrial scale.
- Disappear on gentle rubbing without leaving any residue on skin case use upon application.
- Nontoxic and Non-irritant, soluble in water. Available in natural flavours.
- Available in different shapes & color
- Films have more flexibility and better physical properties.

MANUFACTURING PROCESS OF ACTIFILMS™ CONTAINING VITAMIN E:

The Solution Casting method: It is ideally suited for a water-soluble polymer, "Water soluble" refers to a film which, when exposed to water, begins to dissolve or disintegrate to its smallest components. Film coating is the process whereby active material is surrounded by a thin layer of polymeric material. Film coating method generally involves the steps of

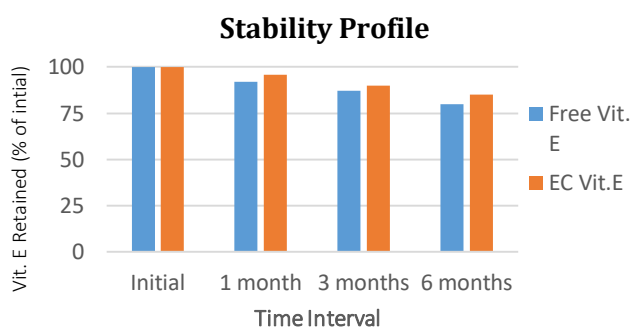
continuously pumping a feed of polymer solution with primary component i.e. HPMC. Both HPMC and colour weighed accurately and mixing of all ingredients to achieve homogeneous



primary solution and further combining with secondary component to polymer solution. Secondary components such as active functional or decorative ingredients are finally deposited into the primary solution onto the casting surface for film formation using Umang Pharmatech's UCFC-600 (Solution tank, Film Casting). The resulting solution is cast as a film and allowed to dry, which are then cut into pieces of the desired size and shape.

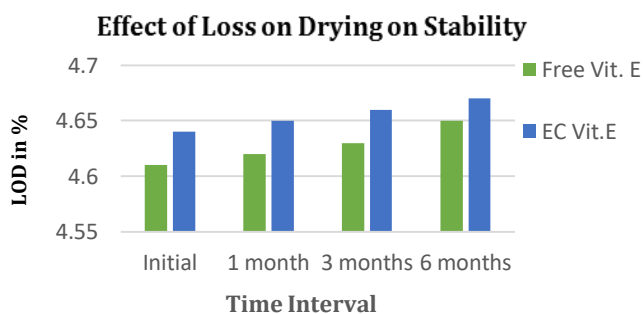
IMPROVED SHELF LIFE STUDY:

The Free Vitamin E (α Tocopherol) and Actifilms™ containing α Tocopherol were kept in an air tight glass bottle and place in Stability Chambers at temperatures of $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 180 days, HPLC analysis show that the Actifilms™ containing α Tocopherol retain 85% of the α Tocopherol while the free Vitamin E (α Tocopherol) only retained 80 %.



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Vitamin E (α Tocopherol) and Actifilms™ α Tocopherol were place in an air tight glass bottles at $30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 180 days in a stability chamber. The sampling and analysis was done at fixed time intervals for their LOD, to check the moisture loss in the samples. Results mentioned in below graph.



CONCLUSION:

The results obtained from this study show that using encapsulated Vitamin E (α Tocopherol) are more stable and deliver desire amount of dose of Vitamin E (α Tocopherol) and make it an ideal for use in formulation.

REFERENCES:

1. M. A. Farage, K. W. Miller, H. I. Maibach. Cosmetic Anti-aging Ingredients. Textbook of Aging Skin.1070-1078.
2. Mohammad Abid Keen, Iffat Hassan. Vitamin E in dermatology. Indian Dermatology Online Journal.2016.
3. T Mitsuishi ; T Shimoda;Y Mitsui ; Y Kuriyama; S Kawana. The effects of topical application of phytonadione, retinol and vitamins C and E on infraorbital dark circles and wrinkles of the lower eyelids. journal of Cosmetic Dermatology, 3, 73-75.
4. P. Narayana. Raju , M. Sravan Kumar, Ch. Madhusudhan Reddy ,and K. Ravishankar. Formulation and Evaluation of Fast Dissolving Films of Loratidine by Solvent Casting Method. THE PHARMA INNOVATION - JOURNAL. Vol. 2 No. 2 2013.

KEY WORDS:

Encapsulated films, Films for special effects, HPMC films, dissolving Films.