

DIRECT INCORPORATE OF VITAMIN A VS ENCAPSULATED VITAMIN A FOR PERSONAL CARE FORMULATION

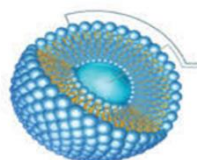


INTRODUCTION: Vitamins have been reported to possess potent anti-oxidant properties. Vitamin A is a natural active ingredient. Vitamin A contains retinal, retinol and retinoic acid that are important to cell production and growth. Vitamin A appears to maintain normal skin health by switching on genes and differentiating keratinocytes (immature skin cells) into mature epidermal cells. Vitamin A is soluble in oils and fats. Skin is a responsive organ, able to readily absorb vitamin A when applied topically.

BENEFITS OF RETINYL PALMITATE:

- Vitamin A (Retinyl Palmitate) helps to speed up healing, prevent breakouts and support the skin's immune system and it promotes natural moisturizing - which means it helps to hydrate the skin effectively, giving it a radiant glow.
- Vitamin A (Retinyl Palmitate) assists in promoting and maintaining a healthy dermis and epidermis.
- Vitamin A (Retinyl Palmitate) Thickens the epidermis, can regenerate skin prematurely aged by UV-radiation and efficiently reduce wrinkles and improve skin elasticity.
- Vitamin A (Retinyl Palmitate) acts as an antioxidant and enhances the appearance of dry or damaged skin.

WHY ENCAPSULATED RETINYL PALMITATE ?



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

UNIQUE FUNCTIONS:

- Sprayspheres®-SC beads containing Retinyl Palmitate are stable so they are easily applied into formulation.
- Sprayspheres®-SC beads containing Retinyl Palmitate disappear on gentle rubbing, releasing the active ingredient without leaving any residue on the skin upon application.
- Sprayspheres®-SC beads containing Retinyl Palmitate are hard and solid in bulk (easy to process and delivery).
- Sprayspheres®-SC beads containing Retinyl Palmitate are hard and dry but soften in contact with at least 20% of water.

MANUFACTURING PROCESS OF SPRAYSpheres® - SC BEADS CONTAINING RETINYL PALMITATE:

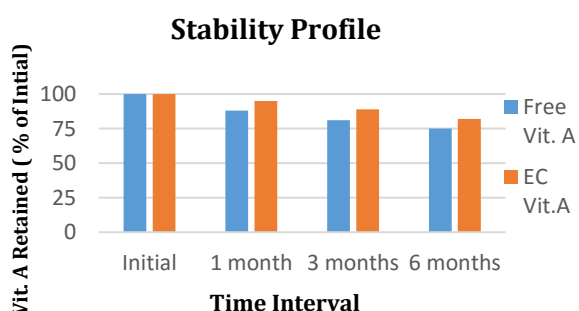
Vitamin A (Retinyl Palmitate), lactose, micro-crystalline cellulose, HPMC and color were weighed accurately and dry mixing of all ingredients is done to



achieve homogeneous powder dispersion, the obtained blend was granulated using purified water to form wet mass. Dry mixing and wet granulation are carried out using Umang Rapid Mixer granulator (URMG-10). This wet mass was then extruded through Umang single screw Extruder (USSE- 60) which produces rod shaped particles of uniform diameter from the wet mass. Extrudes were then spheronized using Umang Spheronizer (USPH-150). After spheronization process, the obtained beads were kept for drying.

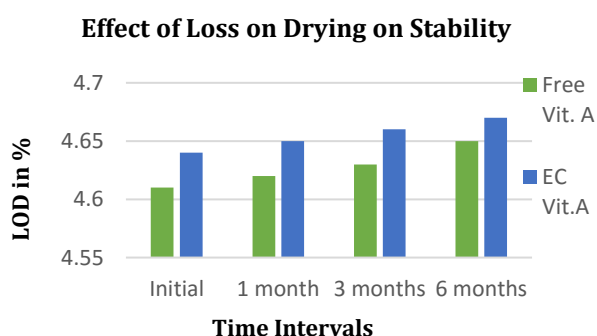
IMPROVED SHELF LIFE STUDY:

The Free Vitamin A (Retinyl Palmitate) and Sprayspheres®-SC beads containing Retinyl Palmitate were kept in an air tight glass bottle and place in Stability Chambers at temperatures of 30°C ± 2°C for 180 days, HPLC analysis show that the Sprayspheres®-SC beads containing Retinyl Palmitate retain 82% of the Retinyl Palmitate while the free Vitamin A (Retinal Palmitate) only retained 75 %.



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Vitamin A (Retinyl Palmitate) and Sprayspheres®-SC beads containing Retinyl Palmitate were place in an air tight glass bottles at 30°C ± 2°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.



APPLICATIONS:

- Body/Face Cream
- Body /Face Lotions
- Body /Face Gels
- Body Emulsions

CONCLUSION:

The results obtained from this study shows that using encapsulated Vitamin A (Retinyl Palmitate) i.e. Sprayspheres®-SC beads containing Retinyl Palmitate are more stable and deliver desire amount of dose of Vitamin A (Retinyl Palmitate) for skin nourishment.

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KEY WORDS:

Encapsulated Beads, Spheres, Cosmetic beads, Beads for special effects, Cosmetic beads for aesthetic effect.