

DIRECT INCORPORATE OF VITAMIN C VS ENCAPSULATED VITAMIN C FOR COSMETIC FORMULATION

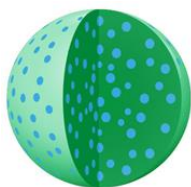


INTRODUCTION: Vitamin C is naturally occurring antioxidants in nature. Most plants and animals are able to synthesize Vitamin C. Vitamin C, as a water-soluble and charged molecule, is repelled by the physical barrier of the terminally differentiated epidermal cells. Vitamin C is an essential nutrient involved in the repair of tissue. Vitamin C has huge benefits for skin and hair. The antioxidant properties of Vitamin C kill the free radicals and make your hair look healthy and lustrous. It's potential to even out skin tone, decrease the appearance of fine lines, wrinkles and prevent to become dry, weak and brittle hair.

BENEFITS OF VITAMIN C:

- Vitamin C (L- Ascorbic Acid) has an antioxidant property protects the skin. It neutralizes the oxidative stress by a process of electron transfer and/or donation. Clear out the free radicals from the pores and help to fight dandruff.
- Vitamin C (L- Ascorbic Acid) is essential for production of collagen which leads to anti-aging effect, reduction of wrinkles and great protein for hair growth.
- Vitamin C (L- Ascorbic Acid) also plays a role as an anti-pigmentation agent, to decrease the melanin formation alternatively lightning the skin.

WHY ENCAPSULATED L-ASCORBIC ACID ?



Encapsulation Technology used in the development of cosmetic formulations that more stable, more effective and with improved sensory properties. Vitamin C (L-Ascorbic Acid) is highly reactive in nature. It is very unstable compound. Vitamin C (L-Ascorbic Acid) 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 of Vitamin C (L-Ascorbic Acid).

UNIQUE FUNCTIONS:

- Sprayspheres®-SC beads containing L-Ascorbic Acid are stable so easily applied into formulation.
- Sprayspheres®-SC beads containing L-Ascorbic Acid disappears on gentle rubbing release and without leaving any residue on skin and hair upon application.
- Sprayspheres®-SC beads containing L-Ascorbic Acid hard and solid in bulk (easy to process and delivery).
- Sprayspheres®-SC beads containing L-Ascorbic Acid are hard and dry but soften in contact with at least 20% of water.

MANUFACTURING PROCESS SPRAYSpheres®- SC BEADS CONTAINING L- ASCORBIC ACID:

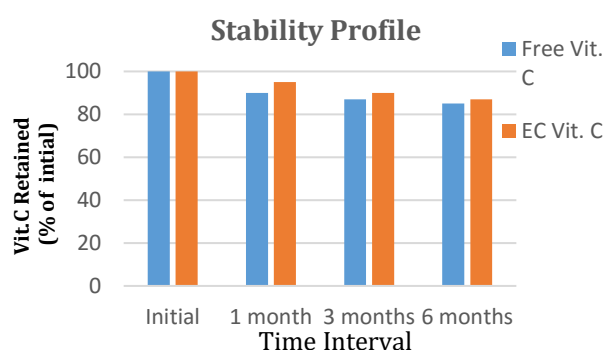
Vitamin C (L-Ascorbic Acid), lactose, microcrystalline cellulose, HPMC and color were weighed accurately and dry mixing of all ingredients is done to achieve homogeneous powder dispersion, The obtained blend was granulated using



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 sphernization process the obtained beads were kept for drying

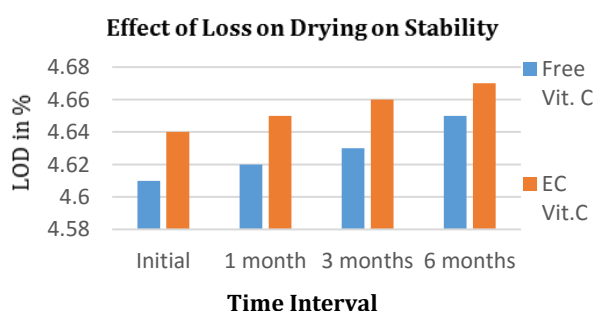
IMPROVED SHELF LIFE STUDY:

The Free Vitamin C and Sprayspheres®-SC beads containing L- Ascorbic Acid 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 L- Ascorbic Acid retain 87% of the L- Ascorbic Acid while the free Vitamin C (L- Ascorbic Acid) only retained 85 %.



TEMPERATURE EFFECT ON LOD STABILITY:

The Free Vitamin C and Sprayspheres®-SC beads containing L- Ascorbic Acid 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:

- Hair Shampoo
- Hair Serum
- Body /Face Creams
- Body /Face Lotions
- Body /Face Gels
- Body Emulsions

CONCLUSION:

The results obtained from this study show that using encapsulated Vitamin C (L- Ascorbic Acid) i.e. Sprayspheres®-SC beads containing L- Ascorbic Acid are more stable and deliver desire amount of dose of Vitamin C (L- Ascorbic Acid) for skin nourishment and hair growth.

REFERENCES:

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3. Juliet M. Pullar; Anitra C. Carr; and Margreet C. M. Vissers. The Role of Vitamin C in Skin Health.Nutrients2017.

KEY WORDS:

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