

FORMULATION OF ENCAPSULATED LEMON EXTRACT FOR HAND SANITIZER



Encapsulation is the physical-chemical technique or process by which active ingredient is protected and surrounded by a polymeric wall made up of Lactose, Mannitol, Microcrystalline cellulose and Hydroxypropylmethyl cellulose (HPMC) that isolates it from its environment.

Sprayspheres SC® beads are specially used for encapsulation that specifically deals with the incorporation of commercially available active material into protective system that can deliver the active to specific site. (e.g. conversion of liquid active agents or essential oils into beads).

Natural and biodegradable lactose and cellulose based colored beads infused with Lemon Extract via encapsulation.

Encapsulated Lemon beads break down upon rubbing without leaving a residue.

Easily dispersed, delivering the active ingredient.

Improved stability in final products during processing (e.g. less evaporation of volatile actives).

Encapsulation Technology deals with these Adjustable properties (actives, particle size, structure, oil etc)

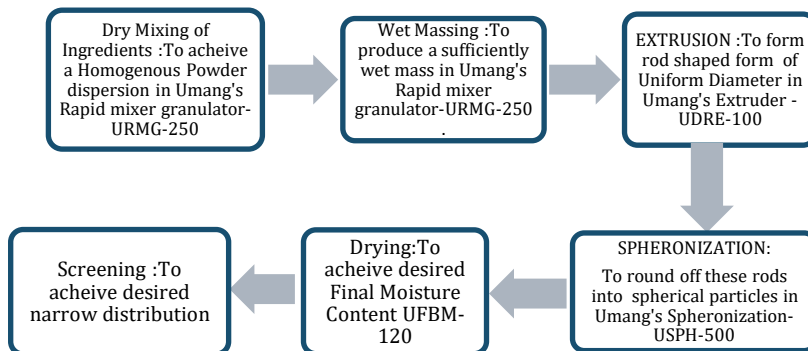
Encapsulated Lemon Oil beads are available in a variety of colors.

Hand sanitizers are convenient, portable, easy to use and not time consuming. Benefits of waterless hand sanitizer are it requires less time than hand washing, act quickly to kill microorganisms on hands, are more accessible than sinks, reduce bacterial counts on hands, do not promote antimicrobial resistance, also are less irritating to skin than soap and water.

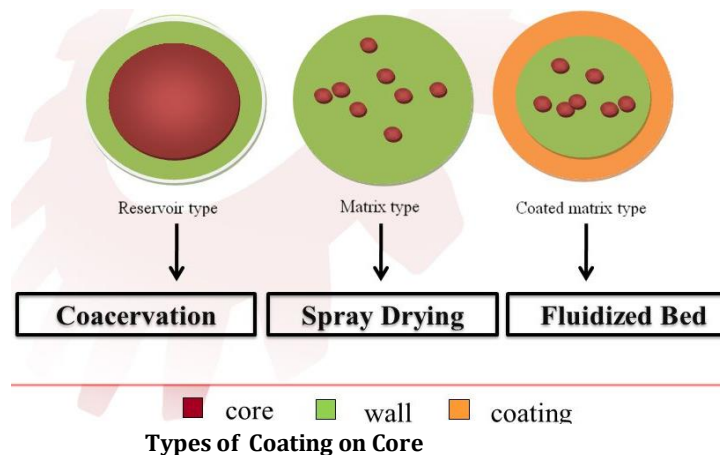
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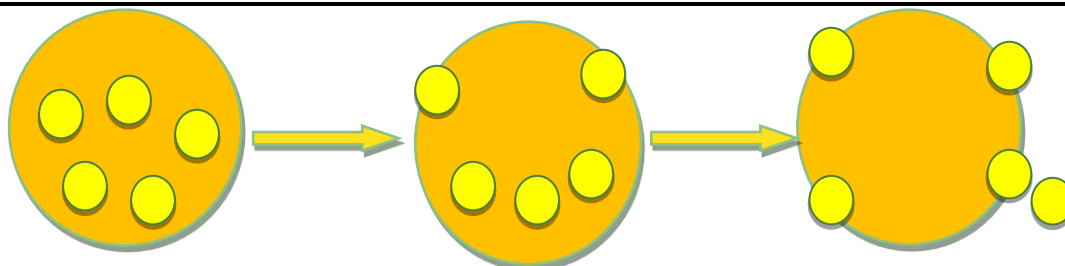
Encapsulated Beads, spheres, Cosmetic beads, beads for special effect, beads for aesthetic effect.

ENCAPSULATION PROCESS



UDRE-100 Umang Pharmatech Extruder





Encapsulated Lemon beads

Rupture by Chemical or Physical factors

Stage of Release

ENCAPSULATION MECHANISM

How Encapsulation Works

- Hand Sanitizers with Encapsulated beads contains molecules of active ingredients that are coated in a polysaccharide shell—think of it as a shiny, slippery, protective coating. The encapsulated coatings in the form of beads in hand sanitizers serves as a carrier system for the active ingredients in your skincare, i.e. the ingredients that are capable of transforming your skin.
- Instead of activating all at once on the surface, encapsulated coatings protect your actives and release them slowly over time. This allows it to sink to deeper layers of your skin, where you can benefit most from active ingredients.
- Hand Sanitizers contain not less than 70% alcohol content in order to kill microbes, germs present on the skin by dissolving their protective outer layer of proteins and disrupting their metabolism thus works immediately and effectively kills bacteria and most viruses.

Key Properties of Encapsulated beads

- Free of microplastics.
- Non GMO
- Perfect Spherical geometry
- Has non-toxic, non-comedogenic and non-allergenic properties
- Oxidatively stable .
- Gentle and Effective on skin .
- Rapid dispersion with excellent uniformity.
- No change in Product pH.
- Encapsulation Stabilizes actives by protecting them from environmental factors, like UV light.
- Easily dispersed by finger to provide smooth and super feeling.
- Provide visual effects and delivery actives.
- Provide Systems that can incorporate Hydrophobic or Hydrophilic actives such as Fragrance, Colour, Vitamin and Herbal Extract etc

Formulation Tip

Formulation Procedure:

STEP I (Phase I): Mix Carbopol slowly with water.

Add Methyl paraben, Propyl paraben, Glycerine, Tween 20 and mix well.

Phase II: Mix Ethanol, and add Encapsulated Lemon beads.

Step II: Mix Phase I & II and at the end add Triethanolamine in dropwise manner for thickness.

INCI NAME:

Microcrystalline cellulose, Hydroxy propylmethyl cellulose, Lactose, Citrus medicalimonum (Lemon) Peel Oil.

Ingredients	Qty
Carbopol	5 gm
Glycerin	25 gm
Methyl paraben	0.18 gm
Propyl paraben	0.2 gm
Triethanolamine	0.5gm
Tween 20	5 gm
DI Water	430gm
Lemon beads	2%