



SalSphere® CBD (SS CBD)

A delivery system for CBD that has a wide possibility of use in cosmetics and wellness applications.

SalSphere® CBD is an encapsulated form of CBD from hemp oil in microspheres that is available as a water-based suspension (Figure 2). It is designed to enable easy formulation and incorporation in production of topical products. SS CBD enhances the stability, deposition, and time-release of CBD.



UNIQUE FEATURES

- 1 **STABLE FORM OF CBD**
Encapsulation protects CBD from oxidation and extends shelf life.
- 2 **EASES FORMULATION & PRODUCTION**
Low viscosity in SS CBD (Figure 3,B) makes it compatible with water-based formulations. Products containing SS CBD can be readily absorbed into the skin for time release.
- 3 **100% NATURAL PRODUCT**
Cruelty-free, polysorbate-free, PEG-free, biodegradable

WIDE VARIETY OF SKIN APPLICATIONS

PAIN RELIEF

SS CBD cream can provide rapid and long-lasting pain relief in a specific area associated with chronic conditions like arthritis. SS CBD can be used in combination with other topical pain relief, such as Menthol and Wintergreen.

ANTI-INFLAMMATORY

CBD has been found to help relieve common skin conditions such as inflammation, itching and burning, bug bites, infections, and scrapes. SS CBD can be combined with other anti-inflammatory agents such as omega-6 and omega-3 fatty acids.

GENERAL SKIN BENEFITS

Antioxidant: CBD is a potent antioxidant that performs better than ascorbate (Vitamin C) or tocopherol (Vitamin E).

Skin Repair: Regulation of cell growth and wound healing.

Anti-Aging: CBD has anti-aging and moisturizing properties that can help reduce and prevent fine lines and wrinkles.

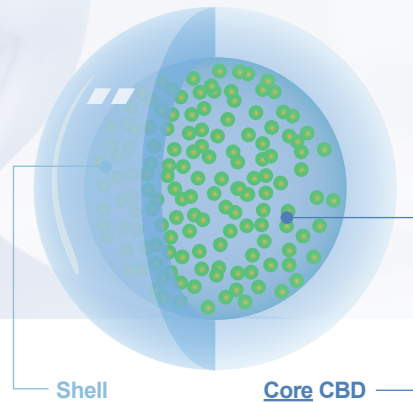


Figure 1: The sub-micron structure of SalSphere® CBD with its core encapsulating the CBD.



Figure 2: A lotion containing SS CBD.

When SS CBD is used at 10% loading, CBD content equals 76ppm of CBD and 0.07ppm of THC.

SS CBD INCI List	Function
Cetyl Alcohol	Core
Stearyl Alcohol	Core
Glyceryl Stearate	Core
Hemp Oil Extract	Functional Ingredient
Hydroxypropyltrimonium Inulin	Shell
Sodium Benzoate	Preservative
Brassicyl Isoleucinate Esylate, Brassica Alcohol	Hydration
Glycerin	Hydration
Xanthan Gum / Water	Hydration
Polyglyceryl-4 Caprate	Stabilizer
Phenethyl Alcohol, Pentylene Glycol, Propanediol	Preservative

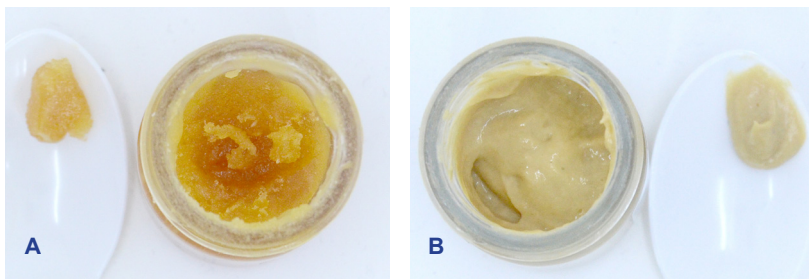


Figure 3: Free CBD (A) has a high viscosity, while SS CBD (B) has a low viscosity to provide CBD in a more formulation- and production-friendly state.

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STABILITY OF CBD AND SS CBD

SS CBD offers a more stable form of CBD for topical applications. Short-term stability studies show that neutral cannabinoids are stable when stored in darkness for up to 15 days. However, a major decrease occurs when exposed to light.

In other attempts to stabilize CBD, such as forms of pulverised resin slabs, the levels of total free CBD seem to decrease exponentially upon storage at room temperature for a prolonged period of time.

Preliminary studies show that SS CBD can offer a more stable form of CBD when compared to free CBD.

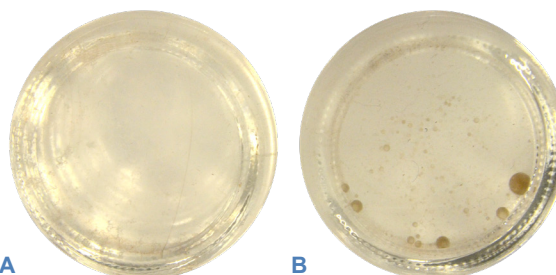


Figure 4: Water solubility of CBD. 0.1% of SS CBD (A) disperses evenly in water after mixing. SS CBD creates a uniform suspension for a consistent, equal dosage of CBD. A commercial product that claims a water-stable CBD (B) leaves floating particles and sedimentation that may not be bioavailable.

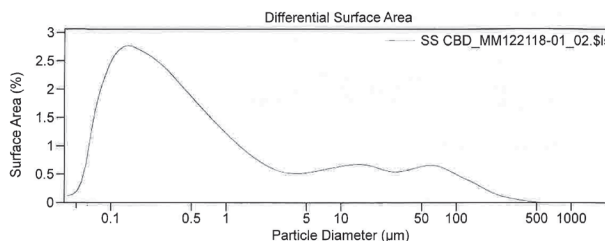


Figure 5: Particle size analysis of SS CBD showing an average diameter of over 0.1 microns using the Beckman Coulter LS Particle Size Analyzer.

SS CBD ANTI-AGING LOTION FORMULATION

It is highly recommended to mix SS CBD with glycerin or any Glycol in 1:1 ratio before adding it to the water phase to ensure homogeneous dispersion.

Ingredients	(W/W %)
SalSphere CBD*	1.00
Glycerin	1.00
Water	85.00
Polquatonium-37, Cetearyl Alcohol, PEG-40 Stearate	2.00
Caprylic, Capric Triglyceride	5.00
Squalene	5.00
Preservative	1.00

*Equals 100mg CBD.

DOSAGE TIPS FOR FORMULATORS

Apply a small dose of SS CBD-based lotion. Studies have shown that an excessive amount of CBD could be less effective therapeutically than a moderate dose.

REGULATORY ASPECTS OF CBD

CBD that is derived from hemp plants is legal in all 50 states in America. Consumers can freely purchase, possess, and consume hemp-derived CBD because it contains less than 0.3% THC and is not psychoactive. Hemp cultivation is legal within the UK, in alignment with EU regulations.

SIDE EFFECTS NOT LIKELY

CBD skin products are generally safe to apply liberally to the skin and are not likely to cause side effects. SS CBD does not contain alcohol or any known allergens. If an allergic reaction occurs, it may be in response to an additive in the product.

Always speak with a doctor before using CBD, especially if you already take other medications. Drug interactions when using CBD topically are unlikely.