

Solutions for Your TOUGHEST
MIXING Applications in

COSMETICS & TOILETRIES



CBD Oil in cosmetic
products

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CBD oil, or Cannabidiol, is an oil derived from cannabis. Its use in cosmetics products, as well as foods and pharmaceuticals, is becoming increasingly popular due to the many health benefits. CBD oil claims to relieve pain, inflammation, anxiety and insomnia.

CBD contains no THC - tetrahydrocannabinol - the psychoactive ingredient so there is no 'high' from it, even if it is ingested as a supplement or capsule.

Silverson mixers are increasingly being used for R&D and small scale production in this emerging market.

The Process

CBD is mostly supplied in liquid form, and depending on concentration can be a highly viscous liquid.

Because of the wide range of products such as lotions, skin care products, muscle balms and creams processing varies depending on the formulation and ingredients used. However, similar processing requirements must be met:

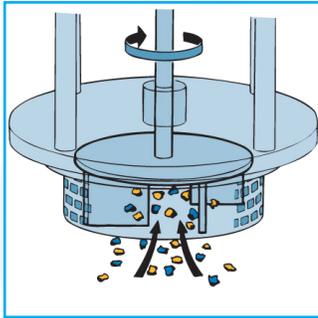
- The mixing system must be capable of blending liquids of widely different viscosities.
- It must also be capable of finely and uniformly dispersing the oil into the aqueous phase in emulsions.
- CBD oil products must be potency tested so production must be consistent between batches to ensure that the amount of CBD oil in the product does not exceed regulatory guidelines.
- Processing is often carried out at raised temperatures, normally between 120 - 150°F (50 - 80°C) to reduce viscosity and aid formation of emulsions.

The Problem

- Depending on concentration, CBD oil can be a highly viscous liquid which can be difficult to blend with water or low viscosity oils such as hemp, vegetable or coconut. When using conventional agitators "stratification" can occur, where the two liquids form layers of globules rather than blending together. Long mixing times may be required to achieve uniformity.
- Some mixing equipment does not produce sufficient shear to finely disperse particles and form a stable emulsion.
- Functional ingredients can form agglomerates that cannot be broken down by conventional mixing equipment and this adversely affects product quality, uniformity and batch-to-batch consistency.
- Heating the mix adds to process time and costs.
- Scaling up from laboratory to production scale can be an issue with conventional mixers and agitators.

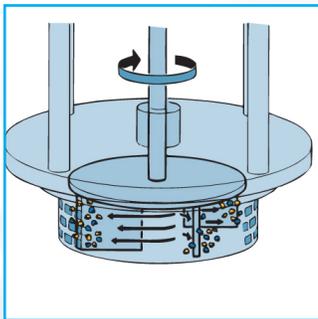
The Solution

These problems can be overcome by using a Silverson high shear mixer. Operation is as follows:



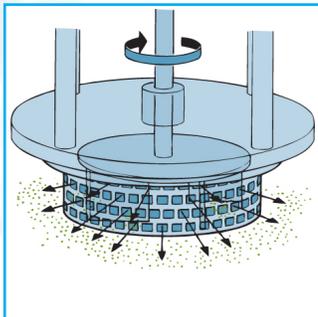
Stage 1

The high speed rotation of the rotor blades creates a powerful suction which draws liquids and any solid or powdered ingredients into the workhead.



Stage 2

The materials are subjected to intense shear within the workhead. Any agglomerates that may have formed are broken down in the gap between the rotor and stator.



Stage 3

The product is forced out of the stator as fresh material is drawn in. Particle size is progressively reduced producing a stable and homogeneous emulsion.

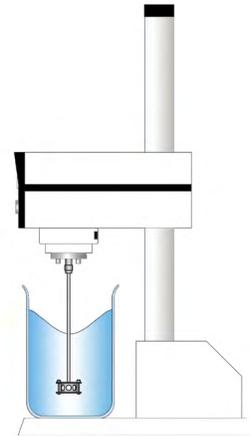
The Advantages

- Droplet size can be reduced down to 2 - 5 microns, ensuring a stable emulsion is obtained.
- Agglomerate-free dispersion.
- Repeatability and batch-to-batch consistency is guaranteed.
- Mixing can often be done at ambient temperature, saving time and money.
- Ultra-sanitary models available.
- Silverson Laboratory mixers can easily be scaled up to production scale equivalents as each Silverson mixer is engineered to the same fine tolerances.

Silverson has a wide range of mixing equipment suitable for this application which can easily be scaled up from laboratory to production scale to keep up with customer demand.

Silverson Laboratory Mixers

- Suitable for batch sizes of up to 3 US gallons
- Built to the same tolerances as production models, providing easy and accurate means of scaling up
- Interchangeable workheads allow the unit to be adapted for a range of laboratory applications
- Several instrumentation options are available, including tachometers and ammeters

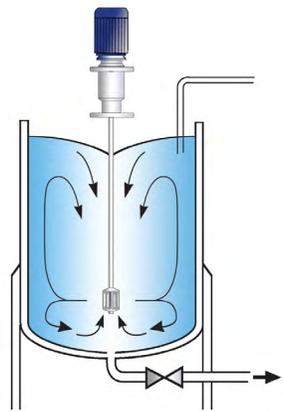


Silverson AX Series Laboratory Mixer

- Features generally as Laboratory mixer above
- Suitable for batches of up to 13 US gallons, depending on viscosity

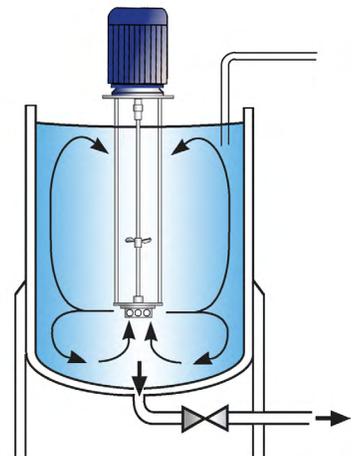
Silverson Ultramix

- Suitable for higher viscosity mixes
- Capable of rapidly incorporating powdered ingredients
- Ultra Sanitary design



High Shear Batch Mixers

- Suitable for batches of up to 265 US gallons
- Can be used on mobile floor stands allowing one mixer to be used for several products
- Small units available for R&D and pilot production



For more information click here to go to www.silverson.com

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