

NANOSTABILIZER®-LSO

USER GUIDE: WITH LSP-600 PROCESSOR IN THE BATCH CONFIGURATION



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MATERIALS NEEDED:

- LSP-600 ultrasonic processor configured in the batch mode (see LSP-600 User Manual for details);
- Digital scale, ice/water bath, peristaltic pump, 1.2 micron in-line capsule filter;
- Tall 250 ml beaker (process beaker), magnetic stirrer with hotplate, stir-bars, darkglass storage container (finished product container);
- NanoStabilizer®-LSO, cannabis extract* (e.g., isolate, distillate, full-spectrum oil, etc.), distilled water.

INSTRUCTIONS FOR MAKING 200 ml OF NANOEMULSION:

The instructions below detail the method for preparing 200 ml of nanoemulsion with the cannabis extract concentration of **20** mg/ml. If a different concentration is desired**, use the table below and substitute the bolded numbers in the instructions with the numbers in the colored boxes.

Cannabis extract concentration in nanoemulsion**	10 mg/ml	20 mg/ml	30 mg/ml	40 mg/ml	50 mg/ml
Cannabis extract	2 g	4 g	6 g	8 g	10 g
NanoStabilizer®-LSO	8 g	16 g	24 g	32 g	40 g
Distilled water	190 g	180 g	170 g	160 g	150 g
Total	200 g				
Number of 10 mg doses per 200 ml of nanoemulsion	200	400	600	800	1,000

- * If your cannabis extract is solid or very viscous at room temperature (e.g., CBD isolate, Delta 8 THC), it may be necessary to dissolve it in a small amount of carrier oil (e.g., 1 part of MCT oil or a terpene to 3 - 4 parts of extract by weight) before processing. Heating to approximately 50°C (122°F) may be required to fully dissolve the extract in the carrier oil.
- ** If your intention is to ultimately convert this nanoemulsion into a water-soluble powder, we recommend that you stay with the **20** mg/ml concentration, as detailed in this guide.





- a. Place the process beaker with a stir bar on the digital scale and carefully dispense
 4 g of your cannabis extract onto the bottom of the beaker.
- **b.** Tare the digital scale and accurately dispense **16** g of NanoStabilizer®-LSO into the process beaker.
- c. Tare the digital scale and dispense 180 g of distilled water into the beaker.
- d. Place the process beaker on the magnetic stirrer/hot plate, turn on the stirrer (at a low speed) and the heater. Bring the contents to approximately 65 °C (149 °F). Continue to stir (increasing the speed as needed) and supply the heat until the ingredients appear thoroughly mixed.

Ultrasonic processing:

In this step, ultrasonic processing will commence. Refer to LSP-600 User Manual for operating instructions.

- Assemble the LSP-600 ultrasonic processor in the batch mode (see LSP-600 User Manual and schematic on the right for details).
- b. Place the process beaker in the ice/ water bath (not shown). The diameter of the bath should be at least 2 times that of the process beaker. You must be able to keep the process liquid temperature below 70 °C (158 °F). The water level of the bath should be sufficient to cover the contents of the
- c. Immerse the FBH-type Barbell Horn® into the liquid in the process beaker by about 5 cm. Make sure that there



is a distance of at least 3 cm from the bottom of the horn to the bottom of the beaker.

d. Set the ultrasonic amplitude to 80 % (see LSP-600 User Manual for details). Note that this setting can be adjusted up or down to optimize the results.



- e. Set the generator to run for 3 minutes (see LSP-600 User Manual for details) and activate ultrasound. When ultrasound automatically deactivates, leave the processed liquid stirring. Replenish the ice in the ice/water bath and let the temperature of the liquid come down to 35 °C (95 °F).
- f. Repeat Step 2f until the total processing time adds up to about 12 15 minutes and no oil is visible at the surface of the liquid (most commonly, 4 - 5 more times). Ultrasonic processing is now complete.
- **g.** Leave the processed liquid stirring on the magnetic stirrer in the ice/water bath for 5 more minutes.

Filtration:

In this step, you will use the in-line capsule filter to remove any particulate contamination from your nanoemulsion as you collect it in the finished product container.

PARTS NEEDED:



- **1.** 1.2 micron in-line capsule filter with 1/2" sanitary fitting
- **2.** Peristaltic pump with 1/2" ID silicone hose
- **3.** 1/2" sanitary to 1/2" hose ID adapter
- 4. Sanitary clamp
- 5. Sanitary gasket



a. Assemble items **1** - **5** as shown in the pictures below.



b. Using your pump at the flow rate setting of approximately 100 ml/min, filter the nanoemulsion by passing it through the 1.2 micron in-line filter into the presterilized finished product container.



- **c.** Store the finished product container with the filtered nanoemulsion in a cool and dark place.
- **d.** Flush the filter with distilled water gently in both directions until the water runs clean.





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