



INSTRUCTIONS

NANOSTABILIZER®-LT

USER GUIDE:

WITH LSP-600 PROCESSOR IN THE BATCH CONFIGURATION



INDUSTRIAL
SONOMECHANICS®

Sonomechanics.com

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, in-line sterilizing filter, 10 ml vials, disposable pipettes;
- Tall 250 ml beaker (process beaker), magnetic stirrer with hotplate, stir bar, dark-glass storage container (finished product container);
- NanoStabilizer®-LT, cannabis extract (e.g., isolate, distillate, full-spectrum oil, etc.), distilled water.

INSTRUCTIONS FOR MAKING 200 ml OF TRANSLUCENT NANOEMULSION:

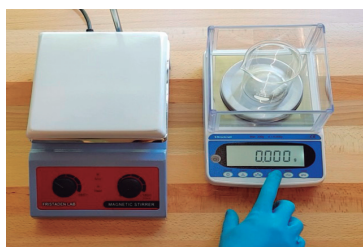
The instructions below detail the method for preparing 200 ml of translucent nanoemulsion with the cannabis extract concentration of **50** mg/ml. If a different concentration is desired, use the table below and substitute the bolded numbers in the instructions with the numbers in the colored boxes.

| 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®-LT | 10 g | 20 g | 30 g | 40 g | 50 g |
| Distilled water | 188 g | 176 g | 164 g | 152 g | 140 g |
| Total | 200 g | 200 g | 200 g | 200 g | 200 g |
| Number of 10 mg doses per 200 ml of nanoemulsion | 200 | 400 | 600 | 800 | 1,000 |

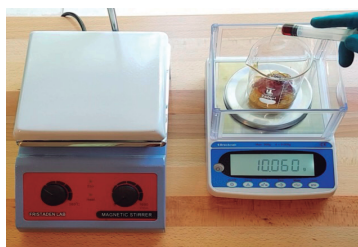
1

In this step, you will mix your cannabis extract with NanoStabilizer®-LT in the process beaker.

- a. Place the process beaker with a stir bar on the digital scale, tare and carefully dispense **50 g** of NanoStabilizer®-LT.



- b. Tare again and carefully dispense **10 g** of your cannabis extract. Be careful to dispense your cannabis extract and NanoStabilizer®-LT onto the bottom of the beaker and not to spill it onto the inner beaker wall or outside.



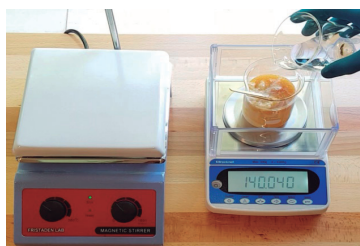
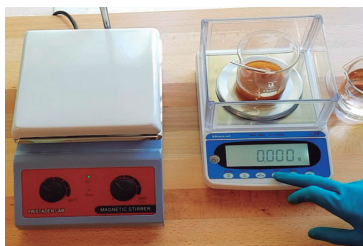
- c. Place the process beaker on the magnetic stirrer with hotplate and stir until your cannabis extract has completely dissolved into the NanoStabilizer®-LT. Apply heat if necessary, but do not allow the liquid temperature to exceed 70 °C (158 °F). Do not remove the stir bar from the process beaker until ultrasonic processing is completed in step 3h.



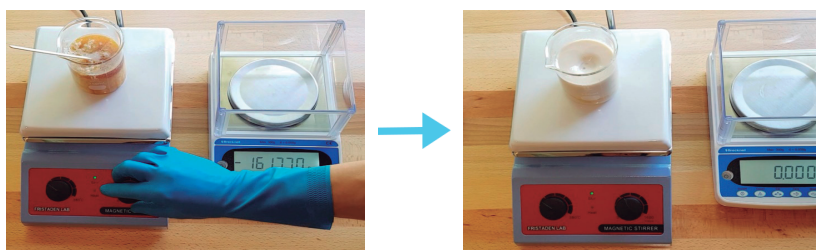
2

Incorporating the aqueous phase:

- a. Place the process beaker on the digital scale, tare and carefully dispense **140 g** of distilled water into the beaker.



- b. Place the process beaker back on the magnetic stirrer with hotplate and stir until a milky consistency is achieved (apply heat if necessary, but do not allow the liquid temperature to exceed 45 – 60 °C (113 - 140 °F)).

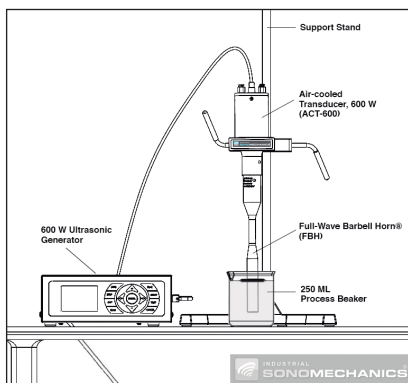


3

Ultrasonic processing:

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

- a. 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 in the schematic on the right). The diameter of the bath should be at least 2 times that of the process beaker. You must keep the processed liquid temperature between 45 – 60 °C (113 - 140° F). The water level of the bath should be sufficient to cover the contents of the process beaker, but not so high that the ice/water could spill into the process liquid.
- c. Place the process beaker and ice/water bath on the magnetic stirrer.
- d. Immerse the FBH-type horn into the liquid in the process beaker down to the horn's flange (~ 6 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.
- e. 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.

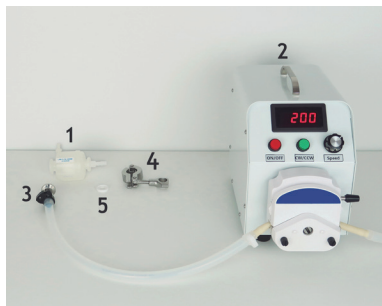


- f. Set the generator to run for 3 minutes and initiate ultrasound, the generator will stop the sonication when the time set is reached. Leave the processed liquid stirring. Draw a sample into a 10 ml vial and notice the degree of translucency. Replenish the ice in the ice/water bath and let the temperature of the processed liquid come down to 35 °C (95 °F).
- g. Repeat Step 3f until consecutive samples have approximately the same degree of translucency (most commonly 3 - 4 more times). Ultrasonic processing is now complete.
- h. Leave the process beaker stirring on the magnetic stirrer in the ice/water bath for 5 more minutes after processing is complete.

4 Filtration:

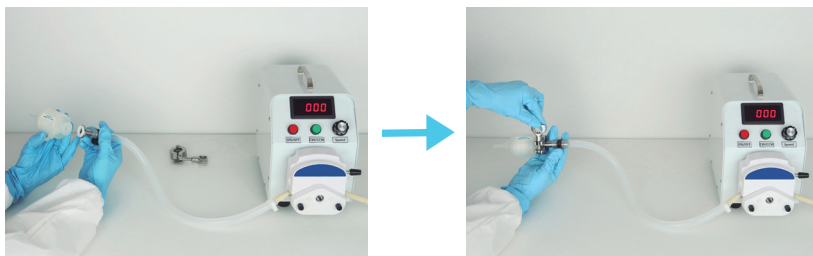
In this step, you will use the in-line sterilizing filter to remove any microorganisms and particulate contaminants from your nanoemulsion as you collect it in the finished product container.

PARTS NEEDED:



1. In-line sterilizing 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. 1/2" Sanitary clamp
5. 1/2" Sanitary gasket

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



- b. Using your pump at a flow rate setting of 100 - 150 ml/min, sterilize the nanoemulsion by passing it through the 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.



Sonomechanics.com