



INSTRUCTIONS

NANOSTABILIZER®-LSO

USER GUIDE:

WITH ISP-3600 PROCESSOR IN THE BATCH CONFIGURATION



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MATERIALS NEEDED:

- ISP-3600 ultrasonic processor configured in the batch mode (see ISP-3600 User Manual for details);
- Digital scale, water chiller, peristaltic pump, in-line capsule filter;
- 3 L jacketed beaker (process beaker), 3 L glass beaker (pre-mix beaker), magnetic stirrer with hotplate, stir bar, dark-glass storage container (finished product container);
- NanoStabilizer®-LSO, cannabis extract* (e.g., isolate, distillate, full-spectrum oil, etc.), distilled water.

INSTRUCTIONS FOR MAKING 2000 ml OF NANOEMULSION:

The instructions below detail the method for preparing 2,000 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	20 g	40 g	60 g	80 g	100 g
NanoStabilizer®-LSO	80 g	160 g	240 g	320 g	400 g
Distilled water	1,900 g	1,800 g	1,700 g	1,600 g	1,500 g
Total	2,000 g	2,000 g	2,000 g	2,000 g	2,000 g
Number of 10 mg doses per 1,000 ml of nanoemulsion	2,000	4,000	6,000	8,000	10,000

* 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.

Note: We do not recommend processing extracts with high wax contents as some of the wax may remain untreated, separate from the nanoemulsion and interfere with filtration.

** If your intention is to convert this nanoemulsion into a water-soluble powder, we recommend that you stay with the **20 mg/ml** concentration, as detailed in this guide. We also recommend that you dry/powderize the nanoemulsion within 48 hours of producing it.

1

Mixing your cannabis extract with NanoStabilizer®-LSO and water:

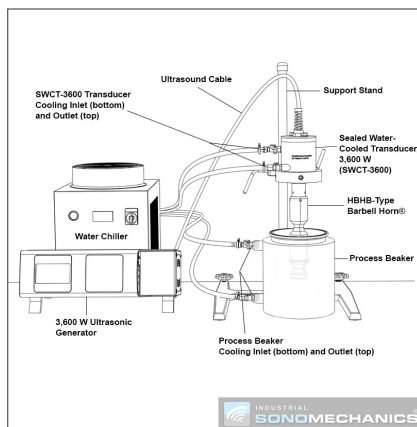
- Place the pre-mix beaker with a stir bar on the digital scale and carefully dispense **160 g** of NanoStabilizer®-LSO on the bottom of the beaker.
- Tare the digital scale and dispense **40 g** of your cannabis extract into the pre-mix beaker.
- Tare the digital scale and pour **1,800 g** of distilled water into the pre-mix beaker.
- Place the premix beaker on the magnetic stirrer with 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.
- Transfer the contents of the pre-mix beaker into the process beaker.

2

Ultrasonic processing:

In this step, ultrasonic processing will commence. Refer to ISP-3600 User Manual for operating instructions.

- Assemble the ISP-3600 ultrasonic processor in the batch configuration (see ISP-3600 User Manual and schematic on the right for details).
- Turn on the water chiller and verify that the transducer and process beaker are being cooled properly. Maintain the processed liquid temperature between 40 ° and 60 °C (104 ° – 140 ° F) throughout processing.
- Immerse the HBHB-type Barbell Horn® into the liquid in the process beaker by about 6 cm. Make sure that there is a distance of at least 5 cm from the bottom of the horn to the bottom of the process beaker.
- Set the ultrasonic amplitude to 80 % (see ISP-3600 User Manual for details). Note that this setting can be adjusted up or down to optimize the results.
- Set the generator to run for 10 minutes (see ISP-3600 User Manual for details) and activate ultrasound. Note that this setting can be adjusted up or down to optimize the results.



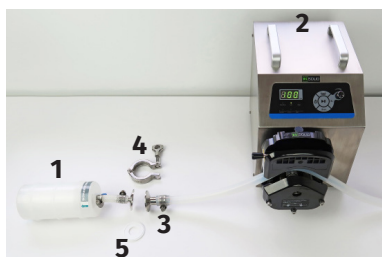
- f. When ultrasound automatically deactivates, inspect the nanoemulsion and make sure no oil is visible at the surface. Ultrasonic processing is now complete.
- g. Allow the temperature of the nanoemulsion in the process beaker to come down to 35 °C (95 °F).

3

Filtration:

In this step, you will use the 1.2 micron 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. 1.5" sanitary to 1/2" hose ID adapter

4. 1.5" sanitary clamp

5. 1.5" sanitary gasket

- a. Assemble items 1 – 5 as shown.



- b. Using your pump at the flow rate setting of approximately 100 – 150 ml/min, pass the nanoemulsion through the 1.2 micron in-line capsule filter into the pre-sterilized 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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