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, 3 L jacketed beaker (process beaker), 3 L glass beaker (pre-mix beaker), magnetic stirrer with hotplate, stir bar, spoon, presterilized dark-glass storage container (enough to fit 2 L), 1 micron capsule filter assembled with integrated syringe;
- NanoStabilizer®-LSO, cannabis extract* (e.g., isolate, distillate, full-spectrum oil, etc.), distilled water.

INSTRUCTIONS FOR MAKING 2000 ml (2 L) OF NANOEMULSION:

The instructions below detail the method for preparing 2,000 ml (2 L) 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* (g)	20	40	60	80	100
NanoStabilizer®-LSO (g)	80	160	240	320	400
Distilled water (g)	1,900	1,800	1,700	1,600	1,500
Total (g)	2,000	2,000	2,000	2,000	2,000
Number of 10 mg doses per 1,000 ml (1,000 g) 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 70 °C (158 °F) may be required to fully dissolve the extract in the carrier oil. 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.

Note: Diluting your cannabis extract in a carrier oil will decrease the concentration of cannabinoids in the extract and the resulting nanoemulsion. After the dilution is made, the carrier oil should be considered as part of your cannabis extract.

** 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.

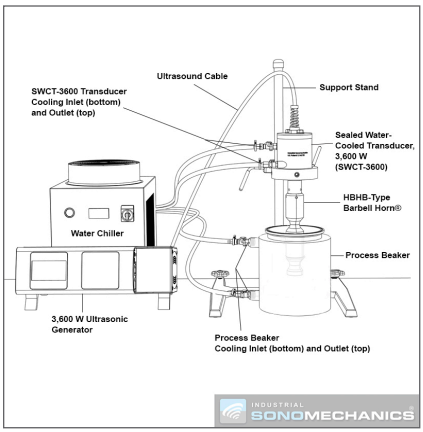
1 Mixing your cannabis extract* with NanoStabilizer®-LSO and water:

a. Place the pre-mix beaker with a stir bar on the digital scale and carefully dispense **40** g of your cannabis extract* onto the bottom of the beaker.
b. Tare the digital scale and accurately dispense **160** g of NanoStabilizer®-LSO into the pre-mix beaker.
c. Tare the digital scale and pour **1,800** g of distilled water into the process beaker.
d. Place the pre-mix beaker on the magnetic stirrer with hot plate, turn on the stirrer (at a low speed) and turn on 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.
e. 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.

a. Assemble the ISP-3600 ultrasonic processor in the batch configuration (see ISP-3600 User Manual and schematic on the right for details).
b. Turn on the water chiller and verify that the transducer and process beaker are being cooled properly. Maintain the processed liquid temperature between 40 °C and 60 °C (104 °F – 140 °F) throughout processing.
c. 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.



d. 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.
e. 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. Remove the Barbell Horn® from the process beaker and stir the nanoemulsion with a spoon until the temperature of the nanoemulsion in the process beaker goes down to 35 °C (95 °F).

3

Filtration:
In this step, you will use the 1-micron capsule filter assembly with integrated syringe to remove any particulate contamination from your nanoemulsion as you collect it in the finished product container.

PARTS NEEDED:

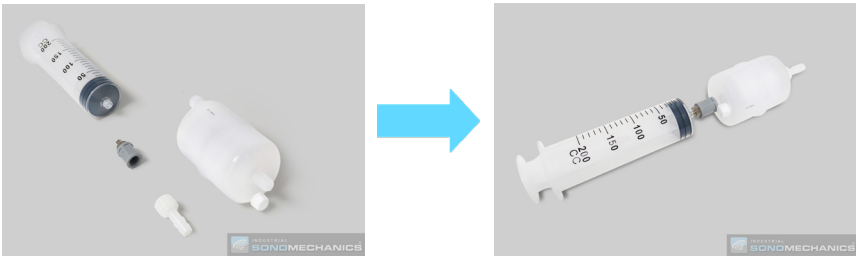
1. 1 micron capsule filter

2. 200 cc syringe

3. Luer lock adapter

4. Barbed adapter

a. Assemble items **1** - **4** as shown in the pictures below.



b. Disconnect the syringe and draw 200 cc of the nanoemulsion into it from the process beaker. Reconnect the syringe to the filtration assembly.

c. Filter the nanoemulsion by passing it through the 1 micron filter into the presterilized finished product container.

d. Repeat steps **b** and **c** until all of the nanoemulsion has been filtered.

e. Store the finished product container with the filtered nanoemulsion in a cool and dark place.

f. Flush the filter with distilled water gently in both directions until the water runs clean.

To re-order NanoStabilizer®-LSO and replacement filter assemblies, please use the link or scan QR code below to visit our online store.

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