

## Ultrasonic CBD Extraction - Step by Step

In order to make a simple cannabis/botanicals extraction setup for mid-size throughput, you should consider to go to larger drums/batches instead of continuous flow. Continuous flow requires, an agitated tank, pump, pipes, hoses, flow cell, pinch valve, pressure sensor, receiving tank etc.. Depending on the particle size and tendency to separate (float or sink) the mix can be tricky to pump. This is well doable but can be an overkill for a small to mid-size production.

Using one or multiple 70 to 140L drums (pic. below shows 120L) with bottom drain it is much simpler to get to production quickly.

A perfect sonication setup would be a UIP1500hdT-115V or UIP2000hdT-230V with B4-1.8 booster and RS4d40L4 sonotrode. A ST2-horiz stand fixture may facilitate to attach the transducer to a stand or hoist. A slow moving rotary mixer is recommended to keep the material in suspension. You should put two holes into the lid - one for the sonication probe, one for the rotary mixer. If you want, add a small gas line for nitrogen to purge the top of the barrel.

Procedure is as follows:

- 0) Identify a suitable ethanol/botanicals ratio that gives a flowable, stir-able mix (as high as possible, as low as required)
- 1) Fill barrel with dry or fresh botanicals, approx. 25% to 40% filling height (see above)
- 2) Fill up with cold ethanol to cover all botanicals
- 3) Stir gently
- 4) Let soak for approx. 10-15mins
- 5) Fill up with ethanol to approx. 90% filling height
- 6) Place rotary mixer blade
- 7) Close lid; attach and start nitrogen flow (if applicable)
- 8) Insert sonotrode from top
- 9) Mount and start mixer (material should be flowable at all times, see 0)
- 10) Start sonication (set at 100% amplitude, set limit to 20 to 40minutes or 1500Wh)
- 10.1) Prepare 2nd barrel, while sonication is running
- 11) Stop Mixer, Remove sonication probe
- 11.1) Start 2nd barrel sonication
- 12) Drain barrel using the bottom outlet (collect and filter the ethanol)



- 13) Open Lid, Remove Botanicals
- 14) Press Botanicals (collect and filter the ethanol)
- 15) Winterize, if necessary
- 16) Evaporate the ethanol, e.g. using a rotary evaporator
- 17) Refrigerate and reuse the ethanol
- 18) Buy a second Hielscher sonication unit to double your production capacity

Please use a proper food grade barrel, such as the one below. Please be careful: ethanol is flammable. Avoid spills, vapor, leaks and ignition sources. Please observe all applicable laws and safety regulations. You can try lower proof (%) ethanols with medium water content, too. Modify sonication time/energy to influence your extraction profile and yield.

USA: <https://www.amazon.com/Barrel-fermentation-SPEIDEL-Fermenter-airlock/dp/B017QYK4JY>

Germany: <https://www.amazon.de/gp/product/B01IWKTN66/>



Read more about:

Cannabis Extraction:

<https://www.hielscher.com/fast-simple-ultrasonic-cannabis-extraction.htm>

Ultrasonicator UIP1500hdT:

[https://www.hielscher.com/i1500\\_p.htm](https://www.hielscher.com/i1500_p.htm)

Ultrasonicator UIP2000hdT:

<https://www.hielscher.com/uip2000hdt>