

## Q700CA Protocol – 1.0L Batch Cannasol Technologies NanoOptimizer™

Instructions:

\*note: all measurements are by weight

1. Add 5 parts NanoOptimizer™ and 1 part active ingredient (CBD isolate, CBD distillate, F.S. hemp extract, THC distillate, etc.) to a 1L glass beaker.  
-For 1.0L batch: 250g NanoOptimizer™ / 50g active
2. Heat the contents of beaker to 65°C and mix thoroughly by hand or with an overhead mixer (do not heat the NanoOptimizer™ above 80°C).  
-Initial hand mixing in a hot water bath followed by machine mixing on a hot plate may reduce mixing time
3. Add 14 parts distilled or de-ionized warm water (~55°C) to the beaker slowly while mixing vigorously.  
-For 1.0L batch: 700g of warm water
4. Continue to mix, scrape beaker walls with a stir stick to remove any stuck material (if necessary).  
-When the coarse emulsion has formed completely, the beaker contents should appear mostly homogeneous
5. Transfer the contents of the 1L beaker into a 1L jacketed beaker.
6. Immerse the ultrasonic probe into the sample, and initiate sonication at 90um amplitude.  
-Ensure the probe is properly submerged in the liquid (1.5 - 1.75" is typically sufficient)
7. Monitor sample temperature during sonication. Ideal processing Temperature is 55 – 60°C, adjust cooling water flow rate as necessary to maintain temperature - do not allow sample to exceed 70°C.  
-A steady trickle is typically sufficient if using "cold" city water for cooling
8. Monitor progress by assessing the color and clarity of the sample - sample will appear to take on more color as particle size decreases. Upon completion, the sample should appear transparent in a glass dropper when held up to a bright light source.  
-Typical processing times with the Q700CA (1" Probe) range from 40 - 50 minutes

9. We recommend filtering the sample with a .2um or .45um hydrophilic membrane filter to remove any titanium particles or residual microbes.  
-Warm emulsion will flow more freely through filter membranes, and filter loading can be reduced by filtering slowly

The instructions above will yield a 5% w/v concentration of active ingredient. If you choose to increase the active ingredient percentage, particle size will increase accordingly, resulting in reduced emulsion transparency.