



Standard Operating Procedure - Ice Water Extractor

Very important - Make sure all tools, tables and material are clean – if you start with microbes, you end with microbes - garbage in = garbage out!

The following is the gear you will need;

- Up to 2lb trimmed plant material (**Fresh Frozen, hand trimmed** is optimal) per cycle (1lb to 1.5lbs is optimal per cycle)
- Eberbach Ice Water Extractor (IWE)
- Eberbach Trichome Separation and Collection System (TS&CS) or, Bubble bags or other sieve bags
 - If using the Eberbach's TS&CS
 - Clean Sieves
 - Clean PTFE Sieve "puck"
 - Clean PTFE sieve scraper
- Cookie sheet/tray with wax paper
- sharpie
- Flash freezer (Harvest Right Freeze Dryer or similar is ideal)
- vinyl food handling gloves
- 40 lbs (roughly) of ice that is sourced from a high-quality source (lab grade if possible), please note, do not use all 40lbs of ice at once (depends on amount of water and plant material per cycle)
- 6 to 8 gallons of distilled or RO water (as pure as possible)
- Stainless steel table spoon
- Stainless steel strainer
- 2 gallon pump sprayer (food grade)
- Spatula



Directions:

Step 1_Machine set up and plant material prep;

First, make sure the area around the machine is clear of any obstructions, during machine operation, the bath oscillates back and forth. After the area around the machine is clear, plug the machine into the power outlet and turn it on.

The control panel start up screen will come up with three options;

- 1 Run
- 2 Timed Run
- 3 Speed Run

The left/right buttons on the control pad move between selections and the up/down buttons change the value of the selection. The amount of oscillations per minute (speed) and how long you run it for is determined by the user, we typically recommend 20 min runs but watch for the foam and make the decision to go shorter or longer runs, 2nd, 3rd or 4th rinse runs can be performed at whatever length is wanted.

Next, place the filter floor in the bottom of the IWE bath and fill bath with water to just above filter floor in the bath (approximately 2.5 gal). Next, add approximately 20-22 lbs of ice (one large bag). At this point, close the IWE bath lid, lock clamps, set the machine to 30 osc/min and run machine for approximately 5 to 10 minutes to allow water temp to cool down to about 33 to 34 degrees Fahrenheit (see temp display on machine). Fill water and ice into 2 gal spray tank and set to side.

Step 2_Plant Material Water Introduction;

Once bath temp is down to desired temp, stop the machine and open the lid, and while wearing gloves, begin placing the plant material (*Fresh Frozen is recommended for best results*) into the ice/water mixture in the IWE bath. While doing this, be sure to push the material down into the water so it submerges as it generally tries to float. Next, close the IWE lid and secure the clamps.

Step 3_Machine Operation;

We typically recommend running the IWE at 60 oscillations per minute for 20 minutes to start but as you learn the processes you can determine the speed and cycle time you feel is best. During the machine operation from time to time look at the bath lid and observe for foaming, foam is a good sign and means you have good trichome extraction happening. After the 20 min cycle, reduce speed to 30 osc/min for 5 min to let trichomes settle. When the run is complete open the lid and, using the sprayer wand, spray cold water on lid to move the foam/water into the bath.

Step 4_Trichome Separation and Collection Process;

If using Bubble bags or other third party sieve bag, arrange your bags so the larger size is inside of the smaller size and make sure you have a large collection container. When sieving bags are in place, open IWE bath drain valve and let drain completely. Once the IWE bath is drained, close the drain valve, refill with water and ice and repeat **Step 3** above as many times as wanted (sometimes, a 2nd or even a 3rd rinse run can have higher yields than first runs). If using the Eberbach TS&CS, arrange your sieve set in their proper order with the larger micron size at the top and the



smallest at the bottom with sieve vent hole facing outward, inline. Pre-wet the sieves with clean water using spray wand to allow for easier flow of the post-extract water. Set up the drain tube from the bath drains into the TS&CS funnel so the water extraction runs through the sieves into the post-extract water reclaim tank. Once this is all in place, open the release valve one quarter of the way to begin a slow drain. Observe and watch for any water that comes out of a sieve vent hole. As the sieves load with trichomes, they could impede the flow of the water (if the plant material has high trichome count) which would cause water to come out of the sieve vent hole. If this does happen, shut the drain valve and check each sieve for accumulation. Use the spatula to push the trichomes to the side so the water can once again flow. Turn the drain back on to quarter flow and continue to watch for accumulation stoppages (with high trichome content plant material, you may need to remove sieves, collect trichomes and clean sieves before the IWE bath is fully drained). After the IWE bath has drained completely, open the drain valve fully and use the pump sprayer to thoroughly spray the sides and bottom of the bath (make sure all foam is drained). At this point we typically recommend running rinse cycles, 2nd and 3rd rinse runs can sometimes have higher yields than first runs. If doing rinse run, close IWE bath drain valve, add more ice (based on observation, how much ice is left from first run) and then filling with approximately 2 to 4 gal of cold water (based on observation of ice and plant material), close IWE lid, lock clamps and repeat **Step 3** above. Next, while the machine is running a rinse cycle, remove the sieve top funnel and using the spray wand spray the top sieve so all visible trichomes are washed down from the plant particulate. Remove each sieve one by one and using the spray

wand, rinse each sieve the before placing the sieves on a clean table top, using a dry, clean, kitchen towel, wipe the bottom of each sieve to help pull out moisture. Next, place each sieve on the PTFE sieve puck and using the IWE PTFE scraper, remove the trichomes (Bubble Hash) from the sieve and place them on wax paper on a cookie sheet/tray. Label the sheet tray using the sharpie with the sieve's micron size. Repeat this process for each sieve. It is recommended that scraped sieves should be rinsed in alcohol then rinsed upside down with cold water and set aside for drying before used again.

When the above is complete, the rinse run should be close to completion, when the rinse run is complete, repeat **Step 4** above.

When done with rinse runs, and trichome collection steps above, open IWE bath lid and using a spatula, move plant material to the center the of the filter floor and pull the floor out of the IWE bath. Place the filter floor into a freezer for the plant material to freeze while performing the next steps. Now, with the filter floor removed, using the sprayer, spray the inside of the bath so all visible trichomes are rinsed out and repeat **Step 4** above.

Step 5_Extracted Trichome / Bubble Hash Processing & Finishing;

Now that the trichomes / bubble hash has been collected from both runs onto the sheet trays, it is time to process them. The first step is to granulate each tray. This is done by placing the trichomes / bubble hash into the stainless steel strainer pressing it through with the back side of the table spoon. Next, place the trays into the flash freezer and run cycle until dry. When the trichomes / bubble hash is dry, it can be weighed and stored.

Step 6_Cleaning;

One of the greatest challenges with extracted trichomes / bubble hash in the regulated cannabis industry is microbial growth. Having plant material that is acquired from a clean grow is paramount. Just as important is cleanliness of self and equipment at all stages of the IWE process.

For cleaning the IWE bath, after the IWE process and the IWE bath is emptied, it is recommended to wipe down all surfaces to remove all visible plant material. Next, using clean food or lab-grade ethanol in spray bottle spray inside of IWE bath, then using a lab grade nylon brush to lightly scrub the inside corners, sides, bottom, drain hole, drain valve, lid and lid seal then let air dry.

For cleaning of the IWE filter floor, disassemble and set parts in soaking trays and use clean food or lab-grade ethanol. Use a small spray bottle filled with ethanol and a lab grade nylon brush to lightly scrub the sieves then rinse with clean cold water. Air dry them after cleaning on stainless steel tables with good ventilation.

For cleaning of the sieves, set individual sieves in soaking tub and use clean food or lab-grade ethanol. Use a small spray bottle filled with ethanol and a lab grade nylon brush to lightly scrub the sieves then rinse with clean cold water. Air dry them after cleaning on stainless steel tables with good ventilation. If you intend to do multiple runs, it is recommended to have multiple sieve sets to reduce processing time, as it is not recommended to skip the cleaning process in between runs.