

RSO/ Ethanol Crude Extraction SOP

Equipment: Delta Separation's Cup-15 and ASRS

Ethanol extraction for ethanol-extracted **distillate crude** or **Rick Simpson Oil**. Extraction technician will use the Delta Separation Cup-15 to extract cannabis oil from flower using centrifugal force. Saturated ethanol is then run through closed-loop filter stack before being separated from cannabis oil in the ASRS system. Finally, RSO and crude extract are decarboxylated, purged of solvents, and made food-safe using a vacuum oven.

Process Overview

- A. Safety/Hazard Information
- B. Preparation
- C. Delta Cup-15 Extraction
- D. Filtration
- E. ASRS Ethanol Separation
- F. Decarb/Solvent Removal

Safety/Hazard Information

See SDS for detailed risks.

- Use caution when using glass under vacuum, keep instruments and body parts away from lab ware under positive or negative pressure to prevent damage to instruments and serious bodily harm.
- Wear appropriate PPE and follow SOPs to prevent injury.

Personal Protective Equipment (PPE):

- Goggles, Hair Net, Lab Coat, Gloves, and Respirator.

Special handling requirements:

- Keep away from machinery moving parts.
- Ground all equipment containing material.

Special equipment requirements:

- Mop and Bucket easily accessible.

Chemical-specific antidotes or first aid treatments:

Eye Contact:

- Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used.
- Get medical attention.

Skin Contact:

- In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient.
- Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse.
- Get medical attention.

Serious Skin Contact:

- Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream.
- Seek medical attention.

Inhalation:

- If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:

- Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband.
- If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation.
- Seek medical attention.

Ingestion:

- Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband.

- Get medical attention if symptoms appear.

Preparation

1. Pull **4500g of trim** from storage room for each Cup-15 cycle. Add information to the extraction run log—date, sign, and add information to the production and waste logs as well.
2. Collect RFID tags and **place the bottom half of the new extraction package tag on the extraction run log**. Ensure that the tag information is listed on the paperwork and physical product. Place the flower source tags in the tag trash bin.
3. Mill trim down to approximately 1/8-1/4” in size. To accomplish this run trim through tornado trimmer for 3 seconds for each basket full of material.
4. Fill the mesh extraction bag completely and evenly—leaving no loose areas or empty space. Bring the extraction bag—along with the extraction run log—to the Cup-5 and prepare for extraction.

Delta Cup-15 Extraction

1. **Pre-chill the jacket** on the Cup-15 by **turning on the chiller located in the C1D2 room**. Ensure that the C1D1 room venting is on and functioning properly. Place the extraction bag in the Cup-15. *****Watch your limbs and head when the lid is open***** Ensure that material is packed evenly within the sock. Close lid on Cup-15 and latch the lid shut. **Ensure that both valves located on top of the latch are open.**
2. Use the valved lid designed for 10gal ethanol containers to fill the Cup-15 with ethanol. Hookup the fill tube to the dipstick side of the keg and hookup the CO2 line to the top port located next to the pressure gauge.
3. Open the valve and allow the head pressure of the CO2 to force the ethanol into the Delta Cup-15 until the level is **1-2” above the plant material** and at least **1 1/2” below the lid**. Use the CO2 and Nitrogen port valves together to regulate the ethanol entering the Cup-15. Aim for **25psi** and ensure pressure is under 30psi. *****If the pressure exceeds 30psi the top port will automatically vent excess CO2.**
4. Select and run “**Agitation 2**” cycle for 17 minutes. This should be set to 120 RPM and 10.0s FWD/REV time.
5. While the system is washing swap the ported lid from the input to the receiving keg. Replace open valve with closed lid cover and secure. When the cycle is complete open the

valve at the bottom of the system to drain the ethanol into the saturated collection keg.

Wait until tubing sight window is **fully drained before proceeding to spin cycle.**

6. **Ensure that CO2 and nitrogen ports are open for venting.** With the bottom valve remaining open, run the spin cycle on the Cup-15. Allow remaining ethanol to drain into the collection keg. Spin cycle should read as follows: A) 2.0 minutes / 200RPM, B) 2.0 minutes / 500RPM, C) 3.0 minutes / 700RPM, D) 6.0 minutes / 850RPM.
7. Once spin cycle is complete, remove hose from valved lid and move the keg into the C1D2 room for filtering.

Filteration

1. Prepare the filter stack for ethanol remediation. Open the tri-clamps on the filter stack at the top to inspect for particulate caught in the media filter. Remove sediment from previous runs if present and remove the clamp from the inside of the filtering column to inspect the filtering media itself. Place the clamp and metal components in a glass of acetone or ethanol to clean. ***If acetone is used, heat gun the affected component for 15-20 seconds before using.

Proprietary Information Begins