PRE-EXTRACTION DECARBOXLYATION

SOP Number	Title of SOP	Version	Date Effective
001	Pre-Extraction Decarboxlyation	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to decarboxylate the THC in cannabis flower prior to extraction. The cannabinoids found in cannabis change when heated. At temperatures between 220 and 280 degrees Fahrenheit, cannabinoids lose a carbon dioxide molecule, which converts them into different chemical compounds. This process is called *decarboxylation*. Before heating, cannabinoids are in acidic form, called cannabinoid acids. The medicinal properties of cannabinoid acids differ from those of decarboxylated cannabinoids. For example, the psychoactive cannabinoid delta-9-THC is not present in whole cannabis flowers until they are heated during the process of smoking or vaporization. The heat converts the cannabinoid acid THCA, a non-psychoactive compound, into the psychoactive compound delta-9-THC. Without decarboxylation to convert non-psychoactive THCA into psychoactive delta-9-THC, the medicinal effect is different. The same is true for other cannabinoids, including CBD and CBC.

Cannabis administered via inhalation, whether in the form of an extract or whole flower, is decarboxylated when heated into smoke or vapor. Cannabis concentrates developed for methods of administration other than inhalation may or may not be decarboxylated as part of manufacturing, depending on the desired medicinal effects of the final product as defined by company specifications. Decarboxylation is achieved by heating cannabis or a cannabis extract to a temperature between 220 and 280 degrees Fahrenheit for 30 to 60 minutes. The various cannabinoids decarboxylate at different temperatures and over different time periods. The length of decarboxylation will depend on the intended final product. For example, some products may be decarboxylated for a shorter time, leaving some THCA molecules intact.

Other products may be decarboxylated for longer to ensure the decarboxylation of all CBD molecules, or to convert more THC into CBN to create a product with sedative qualities. After

decarboxylation, the extract may be analyzed to assure the level of decarboxylation meets product specifications.

MATERIALS

- Cannabis biomass
- Storage containers

EQUIPMENT

- Baking trays
- Oven
- Timer
- Spatula
- Rotovap
- Buchner funnels

PROCEDURE

Use a conventional oven to decarboxylate cannabis plant material prior to extraction.

1. Go to a workstation appropriate for decarboxylation.
2. Log in to ICS to view manufacturing order.
3. Put on PPE.
4. Place cannabis on the metal tray(s) and use fingers to reduce the plant material to pieces approximately 5 to 10 millimeters in size.
5. Preheat oven to the temperature indicated in the manufacturing order. High-THC strains will be heated at 240 degrees Fahrenheit for 120 minutes, and high-CBD strains will be heated at 285 degrees Fahrenheit for 120 minutes.
6. Once the oven is heated, place trays in oven and set timer for the time indicated on the manufacturing order.
7. When the timer goes off, remove cannabis from the oven and allow to cool for 15 minutes.
8. Use spatula and hands to remove cannabis from tray and place in a storage container.

9. Seal the container.

10. Print a label with identifying information about the cannabis and place on the container, following company SOPs for labeling cannabis for storage.

11. Mark manufacturing order completed in the ICS.

12. Store the container or transfer to appropriate extraction workstation, as indicated in the manufacturing order.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

POST-EXTRACTION DECARBOXLYATION

SOP Number	Title of SOP	Version	Date Effective
002	Post-Extraction Decarboxlyation	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

To decarboxylate cannabis extracts after they have been extracted from the plant material. Wasatch may use a vacuum desiccator oven to decarboxylate cannabis resin after it has been extracted from plant material. Placing the extract under vacuum pressure means less heat is required for decarboxylation, preserving the fragile terpenes, terpenoids, and flavonoids that would otherwise break down under the full heat required for decarboxylation.

MATERIALS

- Cannabis extract
- Storage containers

EQUIPMENT

- Pyrex dishes
- Vacuum oven
- Vacuum pump
- Spatula
- Rotovap
- Hot plates

PROCEDURE

1. Go to a workstation appropriate for decarboxylation.
2. Log in to ICS to view manufacturing order.
3. Put on PPE.

4. Spread extract into Pyrex dish(es) in an even layer no more than 1/8 inch thick.
5. Place dish(es) in vacuum oven and seal the door closed.
6. Ensure that the oven is set to the proper temperature as indicated in the manufacturing order.
7. Allow the extract to warm up for 20 minutes before applying vacuum.
8. Close the vacuum oven vent and open the vacuum valve.
9. Turn on pump if it is not already on, allow pressure to decrease as indicated in the manufacturing order
10. As the pressure drops due to vacuum, keep an eye on the extract ensuring that it does not bubble over. This can create a mess in your vacuum oven. If the extract is bubbling too much, close the vacuum valve and open the vent slightly to reduce vacuum which will reduce the bubbling. If this happens, slowly reduce the pressure until you can leave the vacuum valve open without the extract bubbling over.
11. Adjust temperature in the oven as indicated in the manufacturing order.
12. Leave extract in oven for the length of time indicated in the manufacturing order, or until bubbles stop forming.
13. Turn off the vacuum pump and close the vacuum valve.
14. Open the vacuum oven vent to return to atmospheric pressure within the oven.
15. Turn off oven and remove dish(es).
16. Allow extract to cool.
17. Use a spatula or other instrument to remove extract from Pyrex dish.
18. Place extract in food-safe storage container.
19. Tare scale, weigh the contents of the container, and record weight in the ICS, following company SOPs for weighing cannabis.
20. Seal the container.
21. Print a label with identifying information about the cannabis and place on the container, following company SOPs for labeling cannabis for storage.

22. Mark manufacturing order completed in the ICS.

23. Store the container or transfer to appropriate extraction workstation, as indicated in the manufacturing order.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

PURIFICATION

SOP Number	Title of SOP	Version	Date Effective
003	Purification	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

After performing the initial extraction of phytochemicals using the procedures described in this plan, use the appropriate following post-extraction method and procedure to refine, purge, and/or activate the cannabis resin. These processes may be necessary or optional, depending on the extraction method used and the cannabis-infused product being made.

Post-extraction purification begins with the process of Winterization. Winterization is carried out by mixing the cannabinoid-rich extracted solution with food grade ethanol and is then placed in a freezer at low temperatures (the lower the temperature, such as in a low-temp lab freezer, the faster this process occurs) in order to allow waxes to precipitate from the solution. Once the waxes have separated from the extract/ethanol tincture it is then filtered to remove the waxes and any plant material. Progressively finer grades of micron filter paper will remove waxes to purify the solution even further. Falling film and rotary evaporator technology will separate the ethanol from the refined crude product. After separation, the crude will be decarboxylated under heat and manual agitation before it is fractionally distilled. Fractional distillation will refine the product to achieve 85%+ delta-9-THC potency with desired total cannabinoids in 90%+ range.

Parts per million for one (1) gram of finished extract produced in Wasatch's cannabis manufacturing facility will not exceed five hundred [5] parts per million of residual solvent or gas when quality assurance tested.

MATERIALS

- Cannabis oil

EQUIPMENT

- TCW Filtration

PROCEDURE

1. Place THC oil into TCW Filtration vessel

2. Allow it to pass through three separate filters in TCW Filtration vessel, including 25 micron filter, 10 micron filter, and 1 micron charcoal activated filer, for approximately 30 minutes.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

WINTERIZATION

SOP Number	Title of SOP	Version	Date Effective
004	Winterization	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the winterization process.

MATERIALS

- Cannabis oil

EQUIPMENT

- Buchner funnels with filters
- Cryo freezer
- Rotovap
- 20 L flast
- Jars

PROCEDURE

1. Remove rotovap flask.
2. Add up total butter weight.
3. Multiply total butter weight by 20 to get total amount of ethanol to be used in ml. (ex. 500g butter x 20 = 10,00ml ethanol)
4. Collect total ethanol into bucket/s. (Evenly distribute ethanol between buckets if multiple bucket are being used)
5. Poor jar of butter into 20L flask.

6. Poor 300ml ethanol into recently emptied jar.
7. Close jar lid and swirl ethanol around inside jar, loosening any remaining butter in jar. (Use scrub brush if necessary to loosen remaining butter stuck to sides)
8. Poor next jar of butter into 20L flask.
9. CCC
10. Repeat steps 5-7 until all jars of butter have been emptied into 20L flask.
11. Poor remaining ethanol used to rinse jars into 20L flask. (Be sure not fill flask more than 1/2 full or about 9L)
12. Wipe clean the rim of 20L flask and the other body of flask using an ethanol soaked paper towel.
13. Attach rotovap flask to rotovap.
14. Unlock Rotovap support rods and slide them fully out of place.
15. Close Rotovap lid.
16. Unlock Rotovap rotation lock.
17. Turn on Rotovap by pressing power button. (HMI screen should turn on)
18. Press on the “Check Mark” button.
19. Bypass safety pre checks.
20. Fully raise rotovap bath. (Be sure not to let bath overflow during this process)
21. Fill rotovap bath to the appropriate level with distilled water only. (Fill so that float valve sits at its highest position but does not fully max out)
22. Set bath temperature to 70 degrees Celsius and press start on bath temperature setting.
23. Set rotovap RPM to [redacted] and press start.
24. Slowly increase RPM up to [redacted] making sure flask does not create excess turbulence causing bath to overflow.
25. Allow contents to mix until all butter is completely dissolved in ethanol solution. (No chunks of butter should remain)
26. Once butter is fully dissolved in ethanol press “Stop All” button on HMI.

27. Wipe the 20L flask dry with paper towels.
28. Slide flask support rods into place. (Be sure they are locked in place)
29. Turn Flask locking dial clockwise toward lock position. (It won't allow you to turn the dial fully to the lock position until you rotate flask into the lock position. Once you've done so turn dial clockwise into the fully locked position)
30. Unlock Action lock ring releasing rotovap flask.
31. Carefully release flask by sliding flask and support rods away from action lock ring.
32. Remove flask.
33. Poor solution into bucket/s. (Be sure to evenly distribute solution amongst all buckets if using more than one)
34. Poor Clean ethanol into flask and swirl to rinse flask.
35. Poor Ethanol into bucket/s.
36. Place lid on bucket/s and label with total butter weight, strain type, date, and time.
37. Place bucket/s into cryofreezer. (Allow contents to winterize for 24 hours)
38. Clean flask mouth rim and mouth seal of any debris/product using ethanol-soaked paper towel.
39. Set Flask on support rods.
40. Turn rotovap off.
41. Clean workstation.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

SHORT PATH DISTILATION

SOP Number	Title of SOP	Version	Date Effective
005	Short Path Distilation	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the short path distillation process.

MATERIALS

- Decarbed cannabis oil

EQUIPMENT

- Cold Trap Chillers
- Vacuum Pump
- Heat exchange heater
- Lab Society Short Path Distillation
- Lab oven

PROCEDURE

1. Turn on Cold Trap Chillers.
2. Allow Cold Trap Chillers to reach set temperature before introducing vacuum to the system.
3. Turn on Vacuum Pump.
4. Allow Vacuum Pump to run for 2 minutes before introducing vacuum to the system.

5. Turn on Condenser Fluid Circulation.
6. Turn on Mantel Temperature Controller.
7. Turn on Vacuum Gauge.
8. Turn on Vapor Temperature Gauge.
9. Turn on Magnetic Stir Device
10. Set Magnetic Stir Device to 0 rpm.
11. Slowly open Vacuum Pump Inlet Valve.
12. Open Vacuum Pump Gas Ballast once system is stable.
13. Slowly increase the Mantel Temperature Controller set temperature until the desired vapor temperature is achieved.
14. Adjust Magnetic Stir Device setting accordingly.
15. Swap collection flasks to separate appropriate compounds.
16. Follow Distillation Shutdown Procedure

DISTILLATION SHUTDOWN PROCEDURE

1. Turn off Mantel Temperature Controller.
2. Allow Mantel Temperature to cool down to 82 degrees C.
3. Turn off Condenser Fluid Circulation.
4. Turn off Vacuum Gauge.
5. Close Vacuum Pump Gas Ballast.
6. Allow to run for two minutes with Vacuum Pump Gas Ballast closed.
7. Turn off Vacuum Pump.
8. Turn off Cold Trap Chillers.
9. Slowly bleed the vacuum on the system until equalized.
10. Remove flasks and poor them into appropriate containers.
11. Weight and label Product Containers.
12. Place Product Containers in proper storage room.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

L80 CRYO CHILLER

SOP Number	Title of SOP	Version	Date Effective
006	L80 Cryo Chiller	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the process for operating the L80 Cryo Chiller.

MATERIALS

- Ethanol
- Liquid Nitrogen

EQUIPMENT

- L80 Cryo Chiller

PROCEDURE

1. Slowly Open Liquid Nitrogen Tank Drain Valve.
2. Pull E-Stop near L80 Cryo Chiller HMI.
3. Pull E- Stop on L80 Cryo Chiller Control Panel.
4. Log into L80 Cryo Chiller HMI software.
5. Press the “Home” button on the L80 Cryo Chiller HMI screen.
6. Place hose leading to L80 Cryo Chiller Fill Port into Ethanol container.
7. Press “Fill” button on L80 Cryo Chiller Control Panel or HMI screen.
8. Allow L80 Cryo Chiller Chilling Vessel to completely fill.
9. Press “Fill” button on L80 Cryo Chiller to stop filling when desired.
10. Press “Chill” button on L80 Cryo Chiller to initiate chilling process.

11. Allow L80 Cryo Chiller to complete the chilling process.

L80 CRYO CHILLER SHUTDOWN PROCEDURE:

1. Push E-Stop near L80 Cryo Chiller HMI.
2. Push E- Stop on L80 Cryo Chiller Control Panel.
3. Slowly close Liquid Nitrogen Tank Drain Valve.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

FALLING FILM EVAPORATOR

SOP Number	Title of SOP	Version	Date Effective
007	Falling Film Evaporator	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the process of operating the Falling Film Evaporator.

MATERIALS

- Cannabis tincture
- Ethanol

EQUIPMENT

- Falling Film Evaporator

PROCEDURE

1. Pull E-Stop located on the FFE Electrical Control Panel.
2. Pull E-Stop located on the FFE Distillation Pump/Flow Control Panel.
3. Turn FFE Electrical Control Panel to the “On” position.
4. Turn the Recirculation Chiller switch located on the FFE Electrical Control Panel to the “On” position.
5. Turn the Distillation Pump Chiller switch located on the FFE Electrical Control Panel to the “On” position.

6. Allow chillers to reach set points before moving forward.
7. Turn the Heater switch located on the FFE Electrical Control Panel to the “On” position.
8. Press green power button on Mokon for 5 seconds until the display reads “Auto Air Purge”. Ensure Mokon Control Switch is turned to “Low”.
9. Allow Mokon to reach set temperature.
10. Turn Mokon Control Switch to “High” and set the Mekon Temperature accordingly.
11. Allow Mokon to reach set temperature.
12. Turn the Distillation Pump Switch to the “On” position.
13. Allow Distillation Pump to run for 2 min.
14. Slowly close Valve 1 on the Distillation Pump.
15. Slowly close the Anti Cavitation Valve.
16. Slowly reopen the Anti Cavitation Valve until cavitation ceases.
17. Slowly open FFE System Valve 1.
18. Slowly open FFE System Valve 2.
19. Slowly open FFE System Valve 3.
20. Slowly open FFE System Valve 4.
21. Slowly open FFE System Valve 5.
22. Turn the Flow Control Switch to the “On” position.
23. Open FFE Intake Valve 1.
24. Open FFE Intake Valve 2.
25. Set Alycat for Ethanol Circulation.
26. Activate Alycat setting.
27. Continue to Ethanol Circulation for 15 minutes.
28. Set Alycat to 0 gph.
29. Close FFE Intake Valve 2
30. Close FFE Intake Valve 1
31. Remove FFE Intake Valve 1 from Ethanol Circulation Keg Syphon Port.
32. Attach FFE Intake Valve 1 to Tincture Circulation Keg Syphon Port which contains filtered tincture.

33. Open FFE Intake Valve 1
34. Open FFE Intake Valve 2
35. Set Alycat for Tincture Circulation.
36. Activate Alycat setting.
37. Continue Tincture Circulation until Tincture Circulation Keg is empty.
38. Set Alycat to 0 gph.
39. Close FFE Intake Valve 2.
40. Close FFE Intake Valve 1.
41. Remove FFE Intake Valve 1 from Tincture Circulation Keg Syphon Port.
42. Attach FFE Intake Valve 1 to another Tincture Circulation Keg Syphon Port to continue the process or follow the “FFE Shutdown Procedure”.

FFE SHUTDOWN PROCEDURE:

1. Attach FFE Intake Valve 1 to Ethanol Circulation Keg Syphon Port.
2. Open FFE Intake Valve 1.
3. Open FFE Intake Valve 2.
4. Set Alycat for Ethanol Circulation.
5. Activate Alycat setting.
6. Continue Ethanol Circulation for 15 minutes.
7. Turn Mokon Controller to “Low”.
8. Set Mokon Temperature accordingly.
9. Allow Mokon Temperature to lower to 140 degrees F.
10. Set Alycat to 0 gph.
11. Activate Alycat setting.
12. Close FFE Intake Valve 2.
13. Close FFE Intake Valve 1.
14. Slowly close FFE System Valve 5.
15. Slowly close FFE System Valve 4.
16. Slowly close FFE System Valve 3.
17. Slowly close FFE System Valve 2.
18. Slowly close FFE System Valve 1.

19. Fully open Anti Cavitation Valve.
20. Slowly open Valve 1 on the Distillation Pump.
21. Turn the Flow Control Switch to the “Off” position.
22. Turn the Distillation Pump Switch to the “Off” position.
23. Allow Mokon Temperature to reach the Low Temperature Setting.
24. Press the red “Off” button on the Mokon.
25. Turn the Heater switch located on the FFE Electrical Control Panel to the “Off” position.
26. Turn the Recirculation Chiller switch located on the FFE Electrical Control Panel to the “Off” position.
27. Turn the Distillation Pump Chiller switch located on the FFE Electrical Control Panel to the “Off” position.
28. Push E-Stop located on the FFE Distillation Pump/Flow Control Panel.
29. Push E-Stop located on the FFE Electrical Control Panel.
30. Turn FFE Electrical Control Panel to the “Off” position.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

ROTOVAP

SOP Number	Title of SOP	Version	Date Effective
008	Rotovap	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the process for operating the Rotovap.

MATERIALS

- Cannabis oil
- Ethanol

EQUIPMENT

- Rotovap

PROCEDURE

Rotovap Ethanol Removal Procedure

1. Turn Chiller to the “on” position. Take chiller out of “stand by” mode to activate chilling and initiate coolant circulation. Wait till chiller reaches set temp of -5 degrees celsius before introducing vacuum to the system.

2. Turn Rotovap on.

3. Fully raise hot bath. Fill hot bath to maximum level using distilled water. Set hot bath temperature to [redacted] celsius and activate setting. Wait for bath to reach set temperature before introducing vacuum to the system.

4. Turn Vacuum Motor to “on” position.

5. Connect rotovap fill tube to keg.

6. Close drain valves and carb valves on both ethanol catch flask and waste catch flask. Close top valve on waste catch flask. Open top inlet valve on ethanol catch flask.

7. Set vacuum level to [redacted] and activate setting to introduce vacuum to the system.

8. Fill rotovap flask by opening the inlet valve on the fill tube leading to the rotovap flask. Close valve once flask has reached maximum fill.

9. Slowly increase vacuum to [redacted]

10. Set flask rotation to [redacted] and activate setting. Slowly increase flask rotation by [redacted] is reached.

11. Continue this process at current settings refilling rotavap flask and draining ethanol catch flask as needed until ethanol is no longer boiling off.

12. Once ethanol removal process is complete proceed to “Rotovap Decarb” procedure or “Rotovap Shut Down” procedure.

Rotovap Decarb Procedure:

1. Close top inlet valve on ethanol catch flask.

2. Slowly open top inlet valve on waste catch flask.

3. Set hot bath temperature to [redacted] celsius and activate setting.

4. Slowly increase vacuum to [redacted]

5. Continue this process at the current setting until the product is no longer boiling.

6. Proceed to “Rotovap Shut Down” procedure.

Rotovap Shutdown Procedure:

1. Press “Stop All” button on rotovap.

2. Remove rotovap flask. Poor contents into an appropriate container.

3. Rinse rotovap flask with ethanol and poor into scrub bucket. Repeat till clean. Finish by wiping with clean paper towell.

4. Turn vacuum motor off.

5. Turn chiller to “standby” mode then turn chiller to the “off” position.

6. Turn rotovap off.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

MRX EXTRACTOR

SOP Number	Title of SOP	Version	Date Effective
009	MRX Extractor	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the process for operating the MRX Extractor.

MATERIALS

- Cannabis biomass
- Hemp biomass

EQUIPMENT

- MRX Extractor
- MRX heater and chiller
- MRX compressor

PROCEDURE

1. Check coolant fluid level on chiller/heater. (See Figure-1)

2. Turn on chiller/heater: - Turn Dial from “off” position to “local” position. (Chiller/Heater should run for a minimum of 45 min before starting run on on MRX extractor. Accumulator should have a healthy frost before starting run) (See Figure-2)

3. Turn on compressor: - Hold power button for 3 seconds or until compressor kicks on. (Icon will appear on the top left corner of display letting you know that compressor is on) (See Figure-3)

4. Fully close valve #8 (Located near the top of the Extractor Vessel on the left had side facing toward the HMI scree) by turning it all the way to the rights that valve handle is perpendicular to the line. (See Figure-4)

5. Fully loosen all twelve bolts on the Extractor Vessel Lid. (Start with bolt #12, then #6, #9, #3, #10, #11, #1, #2, #4, #5, #7, and lastly #8)

6. Remove all bolts and place them into the numbered slots on the table. (Be sure to place bolts into corresponding slot numbered on the bolt table.)

7. Remove hose from below the pressure gauge located on top of the Extractor Lid Vessel. (See Figure-5)

8. Open Extractor Vessel lid and remove the O-ring from groove at the top of the Extractor Vessel.

9. Place O-ring in the MRX maintenance closet.

10. Vacuum out any remaining hemp from the Extractor Vessel.

11. Grind and weigh hemp to be loaded into the Extractor Vessel. (Fully fill Extractor Vessel with hemp and record total weight of hemp)

12. Vacuum rim of extractor vessel free from any remaining debris.

13. Vacuum underside of the Extractor Vessel lid along with the Extractor Vessel filter removing any remaining debris.

14. Check Extractor Vessel filter (disc shaped filter located on the underside of the Extractor Vessel lid) for any cracks or bulges. (See Figure-6)

15. Wipe underside of Extractor Vessel lid (where it comes into contact with the top of the Extractor Vessel O-Ring groove) using a paper towel soaked with Ethanol.

16. Wipe clean the Extractor Vessel O-Ring groove and area that comes into contact with the Extractor Vessel lid using a paper towel soaked with Ethanol.

17. Place fresh Extractor Vessel O-Ring into Extractor Vessel O-Ring groove. (inspect O-Ring to make sure it is in good condition)

18. Slowly close the Extractor Vessel Lid.

19. Place Extractor Vessel lid bolts into place in order starting with bolt #1 then #2 and so in a clockwise direction.

20. Slightly snug down bolts with a power drill using a star formation in the following sequence: Bolt #6, #12, #9, #3, #7, #1, #10, #4, #8, #2, #11, and lastly bolt #5 (See Figure-7)

21. Do a second pass snugging down bolts a bit more following the same sequence.

22. Do a third pass snugging down bolts (around the world) starting with bolt #1 then #2 going in a clockwise direction ending on bolt #12.

23. Reattach hose to the top of the Extractor Vessel Lid. (Inspect passage ways making sure they are free of any debris or butter)

24. Close ball valves on Main Separator Vessel, Backup Separator Vessel, and Accumulator Vessels (See Figure-8)

25. Make sure hot water ball valve leading to Backup Separator is slightly cracked open.

26. Open all CO2 tanks and valves leading to the machine.

27. Access HMI screen.

28. Select the “Access Login” tap on HMI.

29. Enter “Z” as the username.

30. Enter “1” as the password.

31. Select “Done” button.
32. Select “Login” button.

33. Select “Process Overview” button on HMI.

34. Access side bar menu on right side of HMI screen.

35. Press the “Stop” button on the side bar menu.

36. Press the “Reset” button on the side bar menu.

37. Access the the side bar menu located on the left side of the HMI screen.

38. Select the “Checklist” button. (Checklist menu should appear)

39. Select the “Settings” button. Enter the following prestart system settings:

Accumulator Set Points -

a. Prefill Level % - 60 %

b. Pefill Pressure - [redacted]

c. Prefill Dwell Time - [redacted]

d. Sub-Cool SP - [redacted]

Low Pressure Correction Set Points -

e. Min Operating Level - 0020 %

f. LPC Fill Timer - [redacted]

Press “Accept Settings” button

40. Select “Support Equipment” button.

    a. Double check Chiller/Heater to ensure they are running properly and are at, or within 5 degrees of, set temperatures. Select “Yes” button if so.

    b. Double check compressor to ensure they are running properly and are at pressure. Select “Yes” if so.

    c. Press “Accept Settings” button.

41. Select “Run Settings” button. Enter the following values:

    a. Weight -

    b. Batch# -

    c. Run Time - 8 hours (suggested)

42. Press the “Reset Counter” button

43. Press “Accept Settings” button.

44. Select “Resources” button. If tanks are at proper pressure select “Yes” for each one.

45. Press “Accept Settings” button.

46. Select the first “Vessel” button.

    a. Check the following ball valves to ensure they are closed and the slide is in the lock position:

        1. Separator (Check O bolts to ensure they are even and tight)

        2. Accumulator

        3. Back Up Separator (Check O bolts to ensure they are even and tight)

47. Press “Accept Settings” button. Select the second “Vessel” button.

    a. Check to ensure that the Extractor Vessel lid is securely tightened. Select “Yes” if so.

    b. Check to ensure that the hose located at the top of the Extractor Vessel is securely attached just below the manual pressure gauge. Select “Yes” if so.

48. Press “Accept Settings” button.Select the final “Settings” button. Enter the following values:

    a. Extractor Vessel -

        1. Pressure - [redacted]

        2. Temperature - [redacted]

    b. Separator Vessel -

        1. Pressure - [redacted]

        2. Temperature - [redacted]

49. Press “Accept Settings” button. Select the “Systems Safety Check” button.

    a. Ensure that the following valves are closed. Select “Yes” if so.

    b. Ensure that the following valves are open. Select “Yes” if so.

50. Press “Accept Settings” button. Once you have completed the “Process StartUp Checklist” press the “Auto Button” to start the run.

MRX EXTRACTOR DRAINING/SHUTDOWN PROCEDURE:

1. Access the the side bar menu located on the left side of the HMI screen.
2. Press “Manual” button.
3. Manually fully open the hot water valve located on the rear side of the machine.
4. Press the “Auto Control” button located on the left side bar menu to access the Auto Control screen.
5. Set the “Hot Water Control Valve #1” to 100 percent open.
6. Press the “Process Overview” button located on the left side bar menu to access the Process Overview screen.
7. Open valves V6B, V1, and V3B by touching them on the HMI screen.
8. Press the “Pumps” button located on the left side bar menu to access the pump settings.
9. Turn the “Gas Pump” on by pressing the “Manual Pump Run” button on the HMI screen.
10. Wait till the machine has pumped as much CO2 back to the LPC tank before it starts to dead head.
11. Turn “Gas Pump” off by pressing the “Manual Pump Run” button on the HMI screen.
12. Place mason jar below the main separator drain nozzle. Open the ball valve very slowly till product start to drain into mason jar. Close ball valve when product stops draining.
13. Access Process Overview screen on HMI.
14. Open “valve 10” by touching the valve on the HMI screen.
15. When main separator vessel reaches [redacted] turn “valve 10” off by touching the valve on the HMI screen.
16. Repeat steps 6 - 15 until all product is drained from the main separator vessel and until extractor vessel reaches [redacted] or less.

17. Slowly open the vessel drain ball valves at the bottom of the main separator, the backup separator, and the accumulator until all pressure has been drained.
18. Slightly open “valve 8”, located above the extraction vessel, to bleed all pressure from the extraction vessel.
19. Remove hose from the pressure gauge above the extraction vessel lid.
20. Remove all bolts from the extraction vessel lid.
21. Open the extraction vessel lid.
22. Vacuum out all spent product from the extraction vessel.
23. Close extraction vessel lid.
24. Close all CO2 tank bottle valves.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

30 CUP

SOP Number	Title of SOP	Version	Date Effective
010	30 Cup	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the process for operating the 30 Cup machine.

MATERIALS

- Cannabis biomass
- Hemp biomass
- Ethanol

EQUIPMENT

- 30 Cup machine
- Cryometrics Ethanol Chiller
- Liquid Nitrogen
- Mesh bags

PROCEDURE

30 CUP EXTRACTION PROCEDURE:

1. Pull E-Stop located near the HMI screen of the 30 Cup.
2. Pull E-Stop located on the electrical control panel for 30 Cup.
3. Turn the electrical control panel switch to “on” position.
4. Pressurize Barrier Reservoir Fluid Vessel to [redacted]
5. Pressurize 30 Cup Suspension to [redacted]

6. Attach the L80 Cryo Chiller Drain Hose to the 30 Cup Extraction Vessel Inlet Port located at the top of the 30 Cup Extraction Vessel.
7. Open 30 Cup Extraction Vessel Lid.
8. Place prefilled/prechilled mesh bag into 30 Cup Extraction Vessel.
9. Close and secure 30 Cup Extraction Vessel Lid.
10. Open 30 Cup Extraction Vessel Pressure Release ball valve.

11. Open the 30 Cup Extraction Vessel Inlet Valve.
12. Initiate filling of 30 Cup Extraction Vessel with pre chilled ethanol by pressing the “Drain” button on the L80 Cryo Chiller.
13. Allow 30 Cup Extraction Vessel to fill to maximum level.
14. Press “Drain” button on the L80 Cryo Chiller to stop flow of ethanol to the 30 Cup Extraction Vessel.
15. Close the 30 Cup Extraction Vessel Inlet Valve.
16. Press the “Main Screen” button on the HMI of the 30 Cup.
17. Press the “Agitation 1” button on the HMI screen.
18. Press the “Start” button on the HMI screen to initiate the agitation cycle.
19. Allow agitation cycle to completely finish.
20. Open the 30 Cup Extraction Vessel Drain Valve.
21. Open 30 Cup Catch Vessel Pressure Release Valve.
22. Open the 30 Cup Catch Vessel Inlet Valve.
23. Allow 30 Cup Extraction Vessel to fully drain into 30 Cup Catch Vessel.
24. Press the “Main Screen” button on the 30 Cup HMI.
25. Press the “Spin Dry 1” button on the 30 Cup HMI.
26. Press the “Start” button on the 30 Cup HMI to initiate the spin dry cycle.
27. Allow spin dry cycle to completely finish.
28. Remove the L80 Cryo Chiller Drain Hose from the 30 Cup Extraction Vessel Inlet Port.
29. Attach hose leading from 30 Cup Catch Vessel Outlet Port to the 30 Cup Extraction Vessel Inlet Port.
30. Close 30 Cup Catch Vessel Pressure Release Valve.

31. Close 30 Cup Catch Vessel Inlet Valve.
32. Close 30 Cup Extraction Vessel Drain Valve.
33. Open 30 Cup Extraction Vessel Lid.
34. Remove the mesh bag containing spent product from the 30 Cup Extraction Vessel.
35. Place prefilled/prechilled mesh bag into 30 Cup Extraction Vessel.
36. Close and secure 30 Cup Extraction Vessel Lid.
37. Open 30 Cup Extraction Vessel Pressure Release Valve.
38. Open 30 Cup Extraction Vessel Inlet Valve.
39. Set 30 Cup Catch Vessel Pressure Regulator to 15 psi.
40. Slowly open 30 Cup Catch Vessel Pressure Regulator.
41. Allow 30 Cup Catch Vessel to fully pressurize.
42. Slowly open 30 Cup Catch Vessel Drain Valve.
43. Allow 30 Cup Catch Vessel to fully drain into the 30 Cup Extraction Vessel.
44. Close 30 Cup Catch Vessel Pressure Gauge Regulator.
45. Set 30 Cup Catch Vessel Pressure Gauge Regulator to 0 psi.
46. Open 30 Cup Catch Vessel Pressure Release Valve.
47. Allow 30 Cup Catch Vessel to fully equalize.
48. Close 30 Cup Catch Vessel Drain Valve.
49. Close 30 Cup Extraction Vessel Drain Valve.
50. Close 30 Cup Extraction Vessel Inlet Valve.
51. Repeat steps 15 - 50 as desired.
52. Continue to Lenticular Filtration Process

30 CUP SHUTDOWN PROCEDURE:

1. Open 30 Cup Extraction Vessel Lid
2. Remove any product from 30 Cup Extraction Vessel.
3. Close 30 Cup Extraction Vessel Lid but do not secure.
4. Depressurize Barrier Reservoir Fluid Vessel.
5. Push E-Stop located near the HMI screen of the 30 Cup.
6. Push E-Stop located on the electrical control panel for 30 Cup.
7. Turn the electrical control panel switch to “off” position.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

LENTICULAR FILTRATION

SOP Number	Title of SOP	Version	Date Effective
011	Lenticular Filtration	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
Brent Steffensen, Lab Manager	Steve Gosdis, President	Steve Gosdis, President	9/21/2021

PURPOSE

The purpose of this SOP is to is to describe the process for operating lenticular filtration vessels.

MATERIALS

- Cannabis tincture
- CBD tincture

EQUIPMENT

- Lenticular vessels
- 25 micron, 10 micron, and 1 micron filters

PROCEDURE

1. Attach hose leading from 30 Cup Catch Vessel Drain Port to the hose leading to Sock Filter Vessel Inlet Port.
2. Insert hose leading from the 1 Micron Charcoal Filter Vessel Drain Port into mouth of 30-gallon keg.
3. Close 30 Cup Catch Vessel Pressure Release Valve.
4. Set 30 Cup Catch Vessel Pressure Gauge Regulator to 35 psi.
5. Slowly open 30 Cup Catch Vessel Pressure Regulator.
6. Allow 30 Cup Catch Vessel to fully pressurize.
7. Slowly open 30 Cup Catch Vessel Drain Valve.

8. Close Sock Filter Vessel Purge Valve when site glass completely fills with tincture.
9. Close 10 Micron Filter Vessel Purge Valve when site glass completely fills with tincture.
10. Close 1 Micron Charcoal Filter Vessel Purge Valve when site glass completely fills with tincture.
11. Allow 30 Cup Catch Vessel to fully empty into 30 gallons via filtering through the Lenticular Filtering Vessels.
12. Close 30 Cup Catch Vessel Pressure Gauge Regulator.
13. Set 30 Cup Catch Vessel Pressure Gauge Regulator to 0 psi.
14. Close 30 Cup Catch Vessel Drain Valve.
15. Open 30 Cup Catch Vessel Pressure Release Valve.
16. Allow 30 Cup Catch Vessel to fully equalize.
17. Open Sock Filter Vessel Purge Valve.
18. Open 10 Micron Filter Vessel Purge Valve.
19. Open 1 Micron Filter Vessel Purge Valve.
20. Allow Lenticular Filtration System to fully equalize.
21. Remove 1 Micron Filtration Vessel Drain Hose from 30-gallon keg.
22. Attach Top Housing onto 30-gallon keg.
23. Continue to Falling Film Evaporator Procedure.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

LAB TESTING AND RECORD KEEPING

SOP Number	Title of SOP	Version	Date Effective
012	Lab Testing and Record Keeping	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to describe the process for obtaining lab results for cannabis and CBD products.

MATERIALS

- Cannabis oil
- CBD oil
- Raw flour

EQUIPMENT

- None

PROCEDURE

1. Send product to be lab tested to third-party lab (APRC).

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

EMERGENY PROCEDURES

SOP Number	Title of SOP	Version	Date Effective
013	Emergency Procedures	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to properly response to emergencies.

MATERIALS

- None

EQUIPMENT

- None

PROCEDURE

FIRE EMERGENCY

- In case of a fire emergency, dial 911 for Fire Department.

- After calling 911, if fire is small and isolated, try to exhaust the fire with a fire extinguishers.
- Wasatch's facility is equipped with fire suppression equipment which will automatically suppress any large-scale fire.

CHEMICAL SPILL

- Follow the procedures set forth in the Yellow Safety Data Sheets Binder located _____.

OTHER EMERGENCIES

- Contact 911 for break-ins, burglaries, or any other emergency.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

TRANSPORTATION

SOP Number	Title of SOP	Version	Date Effective
014	Transportation	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to safely and securely transport medical cannabis to dispensaries.

MATERIALS

- Cannabis products

EQUIPMENT

- Delivery vehicle

PROCEDURE

A record of clear and unbroken chain of custody needs to be maintained at all stages. Prior to transporting any cannabis or cannabis-infused product, you must:

1. Complete a shipping manifest using a form prescribed by the department that lists the components required by the department's tracking system.

2. Only the cannabis products that are listed on the manifest shall be transported.

3. Cannabis products that are being transported shall only be transported in a locked, safe and secure storage containers with a copy of the manifest in the interior and on the exterior of the container.

4. Any motor vehicle transporting cannabis shall travel directly from the facility to the dispensary facility, or a testing laboratory, and shall not make any stops that are not on the manifest. Exceptions will include a stop for refueling or, in case of an emergency. In case of emergency, the agents will

report the emergency immediately to law enforcement through the 911 emergency system and the dispensary center, which will immediately notify the department.

5. Delivery times and routes are randomized and reduce the possibility of theft or diversion.

6. Each delivery team member shall have access to a secure form of communication with personnel at the facility and the ability to contact law enforcement through the 911 emergency systems at all times that the motor vehicle contains cannabis.

7. The transport package shall be packed, secured, and loaded and unloaded and unpacked in front of full view of security surveillance cameras.

8. If there are any discrepancies between what is received and the manifest, they will be reported immediately to the Department.

9. Each delivery team member shall possess his or her department issued identification card at all times when transporting or delivering cannabis and shall produce it for the department or department's authorized representative or law enforcement official upon request.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

RECALL

SOP Number	Title of SOP	Version	Date Effective
015	Recall	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to safely and effectively recall cannabis products.

MATERIALS

- None

EQUIPMENT

- None

PROCEDURE

If Wasatch initiates a recall due to a condition that poses a sufficient risk to consumers to warrant a recall appropriate under R68-27-11, the Recall Coordinator will promptly take the following steps:

2. Identify the affected product

3. Secure, isolate, and prevent the further distribution of all affected product in the possession of Wasatch;

4. Notify the department that Wasatch intends to initiate a voluntary recall;

5. Identify which dispensaries, labs, or individuals may have received any of the affected product, and immediately issue a stop use warning to the relevant persons regarding the affected product. Such persons may be contacted by phone, email, hand-delivered notice, or personal visit, whichever may be most expedient;

6. Promptly retrieve all affected product from all identified recipients as soon as practicable in a manner compliant with the rules applicable to the pick-up and delivery of cannabis products in the state;

7. In appropriate cases, as determined in consultation with the department's enforcement officer, issue a press release and other notices designed to ensure that consumers are notified of the recall and provided relevant information about the affected product;

8. In coordination with the department enforcement officer, specifically identify the affected product to determine whether such a product may be remediated or otherwise salvaged;

9. In the event any or all of the affected product must be destroyed, carry out the destruction of the affected product in a manner satisfactory to the department, which destruction will be subject to the oversight of the department enforcement officer;

10. Track the total amount of affected product and the amount of affected product returned to the Company in response to the recall, and provide weekly (or more frequent) reports to the department regarding the progress of the recall; and

11. Fully cooperate with the department enforcement officer to ensure that a recommendation of "recall closure" can be made to the department as soon as practicable.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

SANITATION

SOP Number	Title of SOP	Version	Date Effective
016	Sanitation	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to maintain a sanitary facility.

MATERIALS

- Cleaning supplies

EQUIPMENT

- Brooms
- Mops

PROCEDURE

1. Broom entire facility once per week
2. Mop entire facility once per week
3. Spray lab tables weekly
4. Wash lab equipment weekly
5. Clean bathrooms weekly

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

VIDEO RECORDING SYSTEM

SOP Number	Title of SOP	Version	Date Effective
017	Video Recording System	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to properly maintain the facility's video recording system.

MATERIALS

- None

EQUIPMENT

- EZ View cameras (16 interior cameras 2 exterior cameras)
- EZ View hard-drive
- Alarm.com exterior camera (2 exterior doorbell cameras)
- Clover Monitoring

PROCEDURE

1. EZ View system automatically records camera footage.
2. EZ View system automatically maintains all camera footage for 45 days.
3. Check EZ View software system daily to ensure it is operating correctly.
4. Instruct third-parties to ensure adequate back-up if maintenance or upgrades become necessary to system.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

DISPOSAL

SOP Number	Title of SOP	Version	Date Effective
018	Disposal	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to properly dispose of cannabis biomass waste.

MATERIALS

- Cannabis biomass
- Soil

EQUIPMENT

- Supersacks
- Forklift

PROCEDURE

1. Store all cannabis biomass waste in supersacks located in the facility's warehouse.

2. Mix cannabis biomass waste with soil and removed off-site by third-party vendor.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

STORAGE

SOP Number	Title of SOP	Version	Date Effective
019	Storage	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to properly store cannabis and CBD biomass.

MATERIALS

- Cannabis biomass

EQUIPMENT

- Forklift
- Walk-in Freezer
- Product inventory room
- Storage containers
- Mesh bags

PROCEDURE

Cannabis Biomass Storage

1. After product is ground, place cannabis biomass into mesh bags.

2. Place mesh bags in walk-in freezer behind a locked door.

CBD Biomass Storage

1. Prior to grinding, place CBD biomass into mesh bags.

2. Place mesh bags on racks in warehouse.

3. After grinding, place CBD biomass into mesh bags.

4. Place mesh bags on racks in warehouse.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

DOSING CALCLULATION AND OIL PREPARATION

SOP Number	Title of SOP	Version	Date Effective
020	Dosing Calculation and Oil Preparation	1.0 (Original)	9/21/2021
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			9/21/2021

PURPOSE

The purpose of this SOP is to properly and safely prepare formulate oil.

MATERIALS

- Cannabis biomass
- Terpenes
- Flavored MCT Oil
- Cannabis-derived Terpenes
- Live-Resin Terpenes

EQUIPMENT

- Cartridges
- Tincture bottles
- Filling bottles
- Lab oven
- Lab storage glass
- 50 Shot
- Hot Plate and Magnet

PROCEDURE

CARTRIDGES

1. Obtain lab test results from third-party vendor (APRC).

2. Use formulation calculator program to determine appropriate oil and terpene amounts for cartridges.

3. Place oil into lab oven at [redacted] where it will homogenize for approximately [redacted].

4. Place oil into 50 Shot machine.

5. Fill cartridges.

6. Cap cartridges.

7. Clean cartridges.

8. Inspect and package cartridges.

TINCTURE

1. Obtain lab test results from third-party vendor (APRC).

2. Use formulation calculator program to determine appropriate oil and MTC base amounts for tinctures.

3. Place oil into lab oven at [redacted] where it will homogenize for approximately two hours.

4. Place oil into plastic filling containers.

5. Use plastic filling containers to fill tincture bottles.

6. Cap and seal tincture bottles.

7. Clean tincture bottles.

8. Inspect and package tincture bottles.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

BHO Extraction

SOP Number	Title of SOP	Version	Date Effective
021	BHO Extraction	1.0 (Original)	3/21/2022
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			3/21/2022

PURPOSE

To extract cannabis oil from plant matter, whether it be trim, shake, mixed flower, or even trimmed flower. BHO extraction is an efficient form of stripping oil out of cannabis biomass and collecting it for further refinement & processing.

MATERIALS

- Cannabis biomass (trim, shake, or flower)
- Butane
- Dry ice

EQUIPMENT

- BVV 10lb Active BHO Extractor
- Gloves
- Bowls, buckets, or other receptacle to hold the extracted material

PROCEDURE

Step 1: Turn on BVV extractor.

Step 2: Load .5 to 1lb of dry ice into chiller vessel.

Step 3: Turn on chiller vessel.

Step 4: Load cannabis into the loading column and close column with clamp.

Step 5: Open valve on the butane tank with 2-3 full turns.

Step 6: Open butane release valve on extractor. This starts the extraction process.

Step 7: Allow extraction to run for 45 minutes.

Step 8: Close butane release valve.

Step 9: Open concentrate release valve and pour out extract into pan, bowl, or receiving dish.

Step 10: Close concentrate release valve.

Step 11: Open butane recovery valve.

Step 12: Close butane valve on tank.

Step 13: Close butane recovery valve.

Step 14: Check pressure valves to make sure system is no longer under pressure.

Step 15: Open loading column and remove biomass via vacuum hose.

Step 16: Remove dry ice and discard.

Step 17: Wipe down equipment and turn off booth lights.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

Press Extraction

SOP Number	Title of SOP	Version	Date Effective
022	Press Extraction	1.0 (Original)	3/21/2022
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			3/21/2022

PURPOSE

To extract cannabis oil from plant matter, whether it be trim, shake, mixed flower, dry sift or even trimmed flower. Press extraction can also use bubble hash as an input material. Press extraction is a method that requires no use of solvent and uses low heat and hydraulic pressure to squeeze oil from the input material. The Pure Pressure press uses air from a compressor to generate the hydraulic pressure used for the extraction process.

MATERIALS

- Cannabis (trim, shake, dry sift, bubble hash or flower)
- Filter bags
- Parchment paper
- Receiving/Storage containers

EQUIPMENT

- Pure Pressure Longs Peak Rosin Press
- Air compressor & compressor hoses
- Gloves
- Scraping tools (Picks, spoons, or other similar utensils)

PROCEDURE

Step 1: Turn on Pure Pressure Rosin Press.

Step 2: Turn on air compressor.

Step 3: Load input material into micro mesh bags.

Step 4: Fold the open end of the mesh bag under the bulk of the material. This prevents biomass from being forced out of the bag when placed under pressure.

Step 5: Fold a piece of parchment paper in half and place on the pressure plates.

Step 6: Place cannabis filled mesh bag inside the folded parchment paper.

Step 7: Using the digital screen, select the pressure, temperature, and press time desired.

Step 8: Press start.

Step 9: The press will slowly clamp down on the parchment paper and begin the press the contents.

Step 10: If more pressure or heat is desired, select the changes on the digital screen.

Step 11: When the programmed press cycle is complete, the machine will retract the top pressure plate so the cannabis filled parchment can be removed.

Step 12: Remove the parchment and mesh bag from the press.

Step 13: Open the folded parchment and remove the mesh bag.

Step 14: The parchment will be covered in cannabis oil. Remove oil from parchment using scraper tools and place oil into bowl or glass container.

Step 15: Properly discard of pressed cannabis.

Step 16: Turn off Pure Pressure Press and compressor.

Step 17: Wipe down equipment and wash scraping tools.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

THCa Crystallization (Diamonds)

SOP Number	Title of SOP	Version	Date Effective
023	THCa Crystallization	1.0 (Original)	3/21/2022
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			3/21/2022

PURPOSE

To utilize BHO extract from the BVV extractor and create THCa crystals which are commonly referred to as 'Diamonds'. This is done through placing the concentrate under pressure and allowing the material to sit and consolidate into a crystalline structure. Once this happens, the crystals can be removed from the pressurized vessel and that material can be tested and sold.

MATERIALS

- BHO cannabis concentrate

EQUIPMENT

- Diamond miner (pressurized vessel)
- Vacuum pump & hoses
- Gloves
- Spoons, spatulas, or other scooping utensils
- Glass bowl or other storage container

PROCEDURE

Step 1: Open the diamond miner.

Step 2: Place cannabis concentrate inside the miner.

Step 3: Close and seal the miner.

Step 4: Place miner in cryo freezer for [redacted]

Step 5: Remove and vent vessel and leave vented while the vessel and material come up to room temperature.

Step 6: Once at room temperature, close/seal vessel.

Step 7: Place sealed miner in storage room and allow to sit. During this stage, THCa crystals will form over the next few days.

Step 8: Once desired crystal growth has been achieved open vents and place miner in a vacuum oven.

Step 9: Apply heat and vacuum and allow to run in order to pull off any residual solvents.

Step 10: Once complete, open miner and scoop material into a glass bowl.

Step 11: Clean equipment and work area.

Step 12: Place bowl in storage.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description

BHO Shatter Production

SOP Number	Title of SOP	Version	Date Effective
024	BHO Shatter	1.0 (Original)	3/21/2022
Author	**Reviewer**	**Approved By**	**Date Approved**
[redacted]			3/21/2022

PURPOSE

To utilize BHO extract from the BVV extractor and create a product called shatter.

MATERIALS

- BHO cannabis concentrate

EQUIPMENT

- Stainless steel trays
- Parchment paper
- Vacuum oven
- BVV 10lb Extractor

PROCEDURE

Step 1: Clean and prepare stainless steel baking trays with parchment paper.

Step 2: Open the BVV extractor drain valve over the tray and fill tray half way.

Step 3: Close drain valve.

Step 4: Repeat steps 2 and 3 until all of the extract is drained from the machine.

Step 5: Place each tray on a separate rack within the vacuum oven. There should be at a minimum, 15cm of distance separating each tray.

Step 6: Allow trays to sit in warm oven until the extract material is melted and spread evenly across tray.

Step 7: Wait for foam/bubbles to dissipate and for the extract to become transparent in appearance.

Step 8: Initiate vacuum by slowly opening the vacuum valve. Oil should “boil” mildly.

Step 9: Visually inspect concentrate for bubbling. When large bubbles discontinue and all that is left are small bubbles, close vacuum valve.

Step 10: Open vacuum oven and remove trays.

Step 11: Remove parchment from trays and place on cold stainless steel work surface until it cools enough that it can peel off parchment.

Step 12: Return parchment with concentrate back into baking sheet and place into cooled vacuum oven.

Step 13: Open vacuum valve and pull full vacuum using a cooled oven.

Step 14: Leave under vacuum for [redacted] until concentrate looks glassy and stable.

Step 15: Remove from oven, wrap sheets of shatter in parchment, store in plastic totes to await bulk testing.

REFERENCES

Title	Author	Description

REVISION HISTORY

Revision No.	Revisions Date	Modified By	Description