

Cannabis Extraction with Myers Vacuum

by Casey Walsh

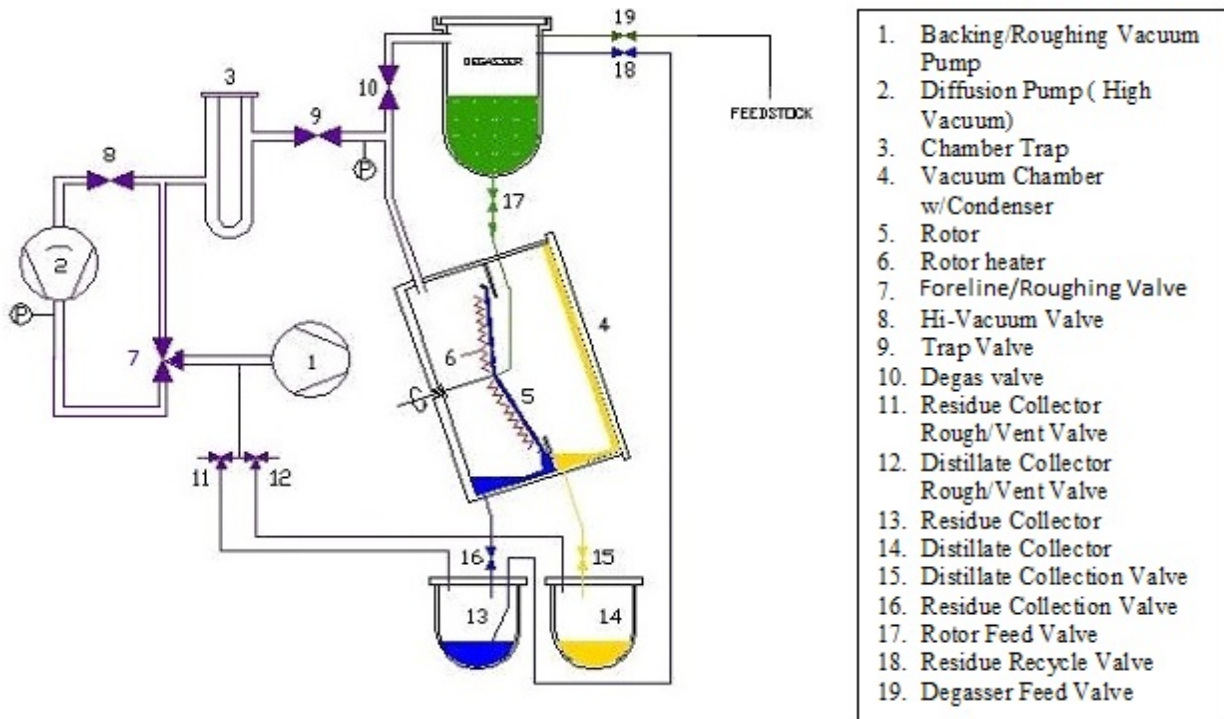
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[Myers Vacuum](#) is based in Kittanning, PA where their team of engineers and technicians build [Myers Vacuum](#) is based in Kittanning, PA where their team of engineers and technicians build equipment, repair machinery, and make distillation units. These units are used for heat sensitive compounds and essential oils in a vacuum range of 1 to 80×10^{-3} Torr in the molecular weight range of 150 – 4000. Myers purchased the Molecular Vacuum Still line from CVC Products in 1990.

The LAB 3 is the tabletop version of their unit used for research, process development, and smaller size production lots. Processes and procedures developed on the Lab 3 are easily duplicated on larger models as demand increases. The Lab 3 is made primarily of stainless steel with a few glass parts that are inexpensive to replace like the residue and distillation flasks.

I have personal experience running a 2" Pope Scientific wiped film and saw some small limitations with that unit. Over all, I was extremely satisfied with Pope's still but found it tough to purify crude Cannabis oil past 90% THC. I initially thought these two stills would have a lot of similarities in distillation temperature, vacuum settings (TORR/m TORR), and length of time before condensing but was wrong to just jump to such conclusions. I'm wondering if Myers LAB 3 can be more thorough than wiped film on a single Cannabinoid pass.



I had to get some help from the owner of [Myers Vacuum](#) to get more insight on its capabilities processing Hemp and Cannabis oil into pure Cannabinoid distillates. I had a chance to sit down with Dean Myers the owner of Myers Vacuum to ask about some technicalities and process settings that make the LAB 3 relevant and highly valuable to the Cannabis Industry.

Short path wiped film distillation units are beginning to surface worldwide since they started being used for distilling Cannabinoids. Wiped film distillation such as Pope Scientific and Root Sciences use mechanical wipers, rollers, or blades to spread the material into a thin film on the inside of heated glass tubes as it flows

downward. With a Centrifugal distillation system, the material is fed into the middle of a heated spinning disc and centrifugal force spreads material into a thin film across the heated surface with fewer mechanical parts. This brings forth the main difference where your oil is in contact with the heated surface for less time. 1 second Centrifugal vs. 10-15 seconds when utilizing short path wiped film distillation. This reduces the chance of thermal degrading (or burning) of the material.

As Dean puts it, "Because of short residence time and distance of travel material, temperatures can be better controlled with centrifugal distillation systems. As the material travels to the spinning disc the surface area increases exponentially spreading material thinner and thinner exposing more molecules to the surface making it more efficient with a single pass."

I asked Dean about what the operating pressures are for centrifugal units. Dean said that the typical operating pressure of Myers still is 1-10 m Torr. This is a way more intense vacuum than what I was operating at when refining cannabis oil using wiped film. When distilling THC molecules in the past I used an operating pressure between 75-85 m Torr at about 115 degrees Celsius. Dean says, "The actual operating pressure is determined by sample prep (dewaxing, degassing, percentage of distillation, etc.)"

Dean also entailed that care should be taken where the vacuum sensor is positioned on the system. "I have seen some systems where the vacuum sensor is mounted on top of the vacuum pump, not on the chamber where it should be. This can give a false reading of more than a decade. The Pope systems I have seen have the sensor located correct but some manufacturers use this trick to give the impression that system is operating at a lower pressure than it actually is."

The Lab 3 is designed to be easily disassembled for cleaning between runs and to keep loss to a minimum. No liquid transfer pumps are used. Just gravity and vacuum pressure transfers your material and the flow rate is controlled by an easily disassembled and cleaned needle valve. If the feed material has not been filtered properly of solids or waxes can collect in the needle valve orifice and restrict flow. My distillation knowledge has increased while putting this piece together with Dean Myers and enjoyed learning more about centrifugal distillation. Both molecular stills have a comfortable spot in this industry and encourage anyone who is looking at purchasing a short path distillation unit to shop around, talk to Dean Myers, talk to Dean Segal from Pope Scientific, and Sam Kassem from Root Sciences, ask a million questions and figure out what still will be the fit best for your operation. Until next time and to the day where we can line these stills up and complete a process using the same exact start material, and have it tested by the same technician, in the same analytical lab. Thanks for reading.