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## Boston George

# ICE WATER SIEVING

*by Frenchy Cannoli*

Hashish is a psychoactive drug made from sieving the resin glands from the dried and cured Cannabis flowers, which is then pressed into a resin mass using a source of heat.

Traditional Hashish producing methods protect the wholeness of the trichomes, which house the full psychoactive and medicinal potential of the plant. Hashish is not only the repository of the wholeness of the plant but this ancient methodology creates over fifty new and rare compounds during the transformation that can be traced to the live and dried plant. Producing traditional Hashish is like making wine, collecting the ripest fruit is only the first step of a transformation towards excellence.

A Hashishin is a craftsperson, and as such needs to have a deep knowledge of all aspects of the substance they work with. Learning the science behind the formation and development of the terpenes and cannabinoids inside the trichomes will help to master the craft but more importantly leads to appreciation of the magic of this unique gift from Mother Nature. The resin we collect is the bibliography of the plant's life, the Book of the Hashishin.

A craftsperson's mastery of their art is also determined by the tools they use, in our case we use a sieve, which is "a device with meshes or perforations through which finer particles of a mixture (as of ashes, flour, or sand) of various sizes may be passed to separate them from coarser ones…". The definition of the word clearly implies that the sieve has to be absolutely clean at all times, the process of separation simply cannot happen when the perforations that form the sieve are blocked. Less obvious, but as important, is the ratio of raw material to sieving surface. Working with a small quantity of material on a large sieving surface is much more efficient than working with a huge pile of material on a limited sieving surface.

Hashishins the world over hunt the "melt" which is expressed by the amount of resin formed in the resin heads. We seek perfect ripeness and maturity, as well as purity, meaning the cleanliness of the trichomes collected.

In producing countries, the quality of dry-sieved resin is largely determined by purity, contaminants are unavoidable when working with dry and brittle material; the more force applied to the handling of the material the more impurities will be created. Trichomes have a tendency to fall easily, little agitation is initially necessary to break the resin heads from their stalks but the process needs to be repeated a few times, with more force applied with each subsequent agitation in order to collect the majority of trichomes from the plant matter. Quality, in producing countries, is mostly dictated by purity and not maturity.

Dry sieving is made up of two inseparable processes; the agitation of the material and the separation of the falling matter through the meshes of the sieve. The incorporation of water into this equation is a game changer.

By using water we have the ability to rehydrate brittle material beforehand and work with plant matter that has fully regained its suppleness. The obvious benefit is to limit contamination of the resin by broken leaf matter but more importantly, the sieving process becomes two separate steps - 1. Agitation in the machine and 2. Separation (sieving) in the bags.

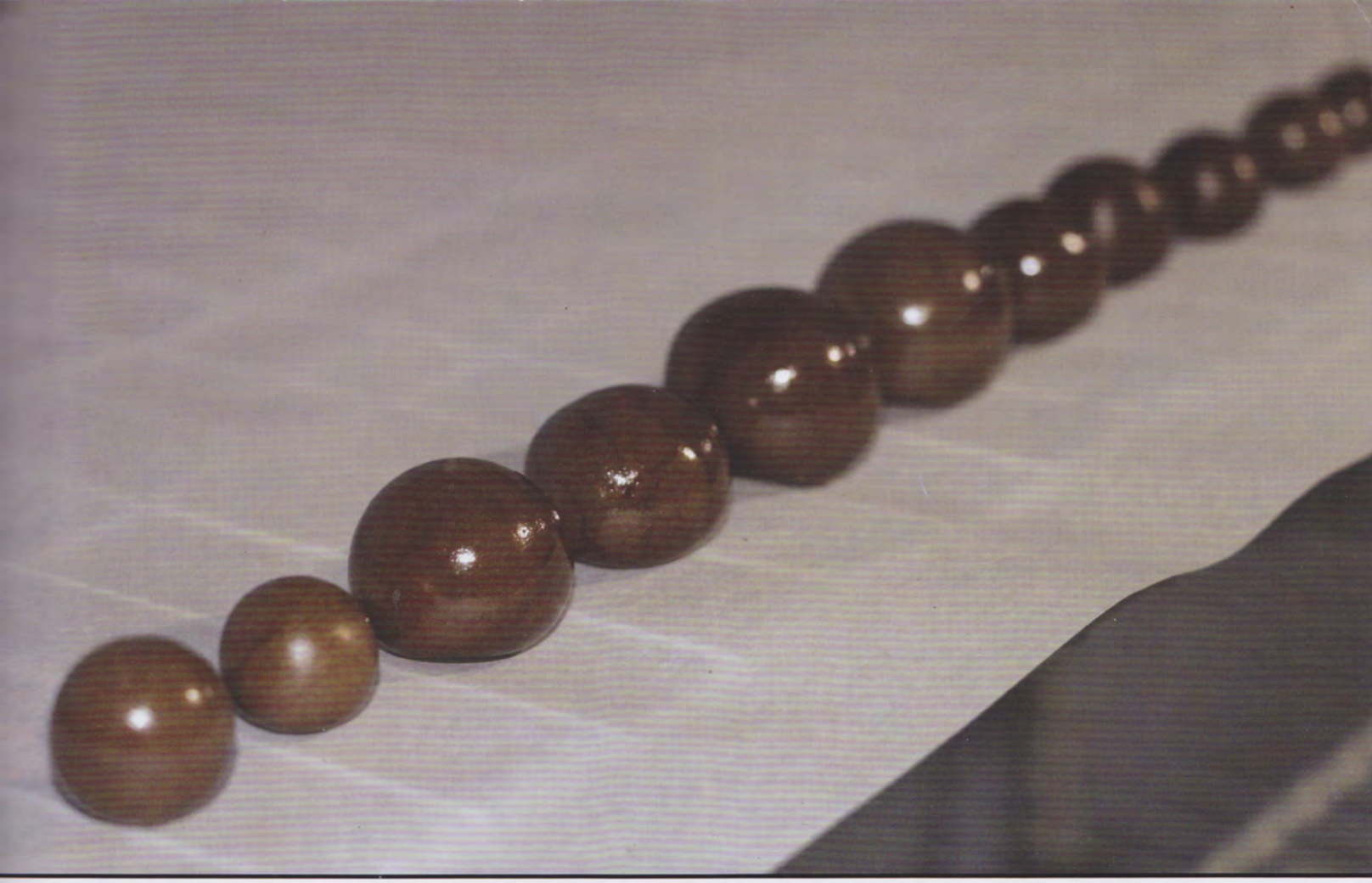
Water gives us the ability to agitate and separate optimally without contaminating the purity of the resin. We can now focus on the most important aspect of resin quality, seeking the ultimate ripeness of the resin heads, the perfect melt.

The following sieving bags sizes, measured in microns, are available on the market; 220, 190, 160, 120, 90, 73, 45, 25. Each bag size represents a slice of the plant's cannabinoid and terpene spectrum.

The vast majority of modern Hashishins hunt the melt by the size of the trichomes; the smaller resin heads range in the 25-micron size while the largest can be from 220 micron up to 500 micron. It is impossible to separate adequately resin and contaminants in the 25-micron and the 160-micron bags because trichomes and impurities are similar in size and cannot be separated by sieving.

The industry recognizes the optimal size of mature trichomes in a range from 45 microns to 120 microns, 73 microns to 90 microns offering the best results. It is important to note that the ideal size of trichome development is dependent on the plant's genetics as well. Generally speaking, a Sativa dominant strain will have smaller resin heads than an Indica dominant, which makes the evaluation of optimal melt by tricomes size problematic.

I would not trade the wholeness of what I call "full spectrum" Hashish (sieved together using 45 to 160 micron bags) for a concentrate that represents just a single slice of the spectrum, however "full melt" t resulting resin may be. The melt is an important element when evaluating quality but there is more than just the visual pleasure when experiencing cannabis resin. It is after all a gustatory experience snd should be approached as such.



## The Tools:

The Mini-Washer
Mini-washers are available on Amazon and E-Bay for $70 to $90. Do not buy a model with a pump. You want the most basic version using gravity to empty the machine.

These machines are not designed for cannabis resin collection. This is most apparent in the structure of the exhaust hose, which is made of groves that collect resin and contaminants. This can be easily fixed by opening the bottom of the washer and replacing the accordion hosing with a 3/4-inch diameter vinyl waterline and two elbows, one with a stopper. Cut one 2" piece of hosing and a second piece 10" to 12" long. Connect them to the elbow pieces. Use metal clamps to secure in place.

There is also a plastic cover over the exhaust point, which has to be taken off completely, or depending on the washer model, the orifices have to be cut larger so that the flow of the water is not hampered when emptying the machine.

The vortex created by these mini washing machines is simply the most effective agitation tool available. It is powerful but gentle and not only "shakes" forcefully the material but the water current created literally strokes the resin heads from their stalks, optimizing the process to new level.

The loose trim, nugs, or flowers are sucked down to the bottom of the machine and into the eye of the vortex, which spins the material in an ever-widening circle toward the surface where the material is then pushed towards the sides of the machine and sucked down to the bottom for another revolution.
For many concentrate manufacturers the standard practice is to put the dry leaf material into the 220-micron workbag that is zipped shut and put into the washer. When the workbag is put directly into the washer the agitation and sieving process are combined, forsaking the advantage of splitting the two processes. Loosing such an advantage is illogical but using a 220-micron workbag also goes against all the basic principles of sieving. It is challenging to use a workbag without having the material bundling at the bottom; the matter is furthermore made worse by the vortex of water constantly twisting the bag into a tighter bundle, creating less than optimum sieving conditions. It is also challenging to clean the meshes of the workbag while processing, which is possibly the biggest handicap of using a workbag especially when working with live resin.

The inadequate agitation process combined with the use of a sieve with plugged mesh holes will affect the resin yield; a loss of resin is inevitable.

The only advantage is the protection the workbag offers from the grinding power of the ice used in the process.

## The Sieve

I had custom-made full-mesh bags to optimize the most important principle of sieving - the more sieving surface available the more effective the separation process will be.

The full-mesh Boldtbags are lighter, stay cleaner, and are designed to facilitate water flow, maximize resin separation and collection. They are made from scientifically engineered material so that the integrity of the size of the perforations is maintained over time.

I pull my bags over separate food-grade 5 gallon plastic buckets that have had the bottoms cut off at different heights to allow a 2" to 3" separation between each bag when hanging on the buckets.

These buckets become a frame that holds the bags perfectly. The bottom of the bags do not touch each other which allows the water to flow easily from one bag to the next in order to optimize the sieving done by gravity and the weight of the water.

I generally use three bags stacked together: the 190, which is my catch bag, the 160, which harvests the ripest and larger resin heads (but harder to clean to perfection). The third bag is my main collecting bag, the 45-micron.
I use also the 25-micron bag, but separately. All the water used in the processing is filtered through it. Nothing is lost this way, even the smaller and most unripe resin heads.

## The Pressure rinse

I use the "Flat" setting of a garden sprayer to forcefully move the resin material around the bag, very much like you would card dry-sieved resin over a screen. The gentle power of the spray agitates the resin over the screen and separates the heads in a unique way that offers the most efficient separation process I have ever experienced.

## The Material:

## The Trim:

A Hashishin does not make quality; it is a gift that only a grower can offer.

The more knowledgeable one is about the material being worked with the better the process can be fine-tuned as defined by the specific characteristics of the plant matter, trim, nugs, flowers and genetics being used.

Please note: we are not judging quality but material physiognomy (outward appearance) in order to optimize our process.

A flower for instance will take longer to rehydrate than sugar trims, an Indica dominant hybrid like Girl Scout Cookies can be agitated more forcefully than a Haze without being damaged and a live plant will require a colder working environment.

I work solely with live plants or dried material that has been cured a minimum of three months, the oldest material I have run was two years "old" and the resulting resin was remarkable.

Live resin, at the peak of the plant's flowering cycle, has a terpenes profile made up of 120 plus terpenes, many in minute quantities but all important to the overall psychoactive and medicinal properties of the resin. Live resin is very much like Himalayan Charas; the experience is clean, cerebral, vibrant and energizing.

I never freeze fresh material because plant matter is made of 90% of water contained between the cell walls. When water freezes there is an approximate 9% expansion of the water mass, small ice crystals are formed in the plant tissues and damage the cell walls, which will release a lot of chlorophyll upon defrosting. The membrane holding the resin volatile compounds will most certainly be weakened as well by freezing, which is a threat to the protection of the terpenes and the final overall quality.

Every Hashishin of every producing country with the exception of Afghanistan (In Afghanistan the resin is collected when the plants are dried and is kept for months in an enclosed and airtight container, traditionally a goat's skin.) cures the resin on the plant three to nine months, fresh resin is never smoked as far as historic and traditional evidence shows.

Cannabis connoisseurs unanimously prefer their flowers cured and not just dried. High quality flowers and resin needs to be cured slowly, over a period of at least 3 months to reach its full potential.

There is a major loss of terpenes during the drying and curing period of the flowers that is inevitable; approximately 80% of the terpenes present in the live plant evaporate. However, the remaining major terpenes are transformed through a polymerization process, which ultimately changes the terpene profile, apparent in the olfactory difference between a fresh flower and a cured flower. A perfectly cured flower and resin represent the second peak of quality offered by the plant.

Dry and cured resin is very much like traditional Hashish; the experience is relaxing, comforting, warm and soothing.

## The Medium:

## The Water:

Water is the perfect medium for sieving, while being classified as a solvent it does not act as such with trichomes; beyond rehydration and optimal agitation, water is also an effective containment medium for a product that is hard to handle when dry. However, water too often contains sediments and many chemicals that are not only dangerous to consume but that could potentially weaken the structure of the resin gland membranes.

A water filtering system is mandatory. Reverse Osmosis (RO) systems are recommended but not mandatory. Remember, the purity of the collected resin is dependent to a degree on the purity of the water source.

The Ice:

I classify ice with water because it is part of the medium that agitates and receives the trichomes, and for that reason the ice cubes should be made with pure water only. Ice is actually your nemesis. It is the only variable that has the potential to crush and damage rehydrated material. Roundish ice cubes are recommended for that reason. It is important to understand that ice is only necessary to create a cold environment that will facilitate the handling of a product that is sticky by nature. Ice is not a tool to break the resin heads from their stalks. The courant of the water will do that.

## Optimizing:

The ratio of water, ice, leaf material and the length of the wash cycle are the deciding factors of the agitation process.

Water is the receptacle and the power that detaches the resin heads from their stalks. As a principle, the more water and the less material and ice there is, the more powerful and effective the courant of the water vortex will be.

Ice gives the ability to work in a cold environment but it has to be used sparingly. Too much ice will grind the leaf matter and hamper the flow of the vortex.

The material requires space for agitation, the more space the more effective the process, the less material the more powerful the water courant. Simply put LESS IS MORE. I recommend working with approximately 300 grams at a time, less when doing live resin.

The length of the cycle represent the power behind "shaking the tree" to collect the different dimensions of ripeness. The first cycle is hardly half a minute long, it is the first light shake that will detach the ripest trichomes.

## The Process:

The Ice Sandwich:
Complete rehydration of the plant material is required at the beginning of the process to avoid leaf matter breakage and contamination. I initially make an ice "sandwich" to create a cold working environment, and to keep all my material submerged underwater to absorb the water evenly. I place a little ice first to avoid resin sticking to the bottom of the machine and jamming the turning plate. It is not pleasant to have to release the plate manually, in ice water, even with a gloved hand.

The top layer of ice keeps the trim submerged. However, this requires a disproportionate amount of ice, for that reason the first cycle of the machine will constantly have the potential to grind the material and create contaminants.

Different materials will rehydrate at a different rates. The time necessary will be defined by the specific characteristics of the plant matter, trim, nugs, flowers and genetics. The rehydration process takes approximately ten to twenty minutes; the best way to assess complete rehydration is by manually checking the suppleness of the material. When the material is sufficiently hydrated it will bend like a live leaf without any breakage or tearing.

The First Wash:
The ratio of water, to ice and material is disproportionate during the first run. The excess ice will grind the leaf. To avoid this challenge a very short cycle is required which essentially fits into our approach of collecting the different dimensions of ripeness - only a small shake is necessary for the ripest fruits to fall.

I stop my first cycle after only a few seconds, as soon as the upper layer of ice cubes is sucked into the vortex with the material. The sound of the ice is the best guide. The grinding sound is unmistakable, a deep and unpleasant "grrrrr" noise that indicates, "Stop the cycle!" as soon as you hear it.

The stacked buckets holding my sieving bags are supported by a metal grille placed over a large plastic storage container that allows gravity and water to flow freely through the bags and into the storage container, offering the first natural separation in the sieving process.

The color of the water varies from fluorescent green to a dark shade of red and purple depending on the coloration of the plant. The water should be cloudy with resin heads but not muddy green from grinded leaf matter.

Rinse lightly the 190 bag with the sprayer set on "Shower".

There is often a lot of leaf matter in the bag which happens most frequently with small leaf material (sugar trims) and is due to the need to maximize the exhaust flow; simply put the collected leaf matter back into the machine and clean the bag thoroughly with alcohol if there is any stickiness. The cleanliness of the meshes defines the amount of trichomes that can pass through the sieve into the collection bags.

Put the bucket frame holding the 190-micron bag on a clean surface. If dirt or other contaminants stick to the bottom of the bag it will end up later in the 160-micron bag that is stacked under it.

Rinse thoroughly the 160-micron bag by moving the resin around as widely as possible across your sieving surface to maximize the separation. It is important to avoid cleaning the resin of the 160-micron bag over the 45-micron bag to prevent unnecessary contamination.

I do not collect the resin from the 160-micron at every wash for the simple reason that there is often little enough of it. I simply rinse and clean the 160-micron at every wash until the last. Otherwise, I collect the resin from the 160-micron solely if there is simply too much of it, and it hampers the flow of water and by doing so captures too much of the smaller micron resin heads in its mass. The amount of resin collecting in the 160-micron is a good, if imperfect, indicator of quality. Large size resin heads usually indicate maturity.

Put the bucket holding the bag on a clean surface and top it with bucket holding the catch bag so that any flying contaminants will not land in the 160-micron bag.

The 45-micron bag is obviously the most important. The first wash will not be the cleanest or offer the most return, as we have hardly shaken the material/tree, and at this stage are collecting only the ripest trichomes, which will have the darkest coloration.

Rinse thoroughly the resin, moving it across the sieving surface pointing the spray under the mass of resin. When powerfully rinsing the 45-micron bag, foam will form over the resin. The bubbles hold all the contaminants and can easily be pushed through the sieving surface of the bag.

Rinse until the color of the foam is exactly the same color than the resin and gently push the resin toward the middle of the bag in as small a puddle as possible to facilitate collecting.

*Gathering the Sieved Resin to Dry*
*Drying is the most difficult and delicate part of the ice water sieving process. It has to be perfectly executed so that there is a minimum loss of terpenes and no humidity left that could later degrade the resin stability and quality.*

## Drying in a Room

Room Requirements: Separate room with stable humidity level of 35%, a temperature of 55°F, air ventilation, shelving, small fridge.

Tools: Frisbee, dull knife, Pyrex dish, 25-micron pad, metal sieve, metal spoon, parchment paper.

Squeeze most of water out of the sieving bag with your hands before placing the bag between two clean towels to gently remove as much of the remaining excess water as possible.

Stretch the bag carefully across a Frisbee and over a large Pyrex dish. There are always jumpers.

Scrape the resin with a very dull knife from the 45-micron bag onto a 25-micron sieve pad laying flat in the Pyrex dish.

Step into your drying room with the Pyrex dish holding the collected resin; take the spoon and the metal sieve from the fridge where they had been placed previously to chill.

Place the resin in the metal sieve and use the metal spoon to push the resin through the perforations over the parchment paper. It is necessary to keep moving slowly and steadily over the surface of the paper in order to spread the resin evenly and as widely and thinly as possible over the surface of the drying rack. It is not recommended to try separating the resin further by hand. After a night of drying, the resin will be easier to manipulate and spread more.

## Drying with a Freeze Dryer

A freeze drier or vacuum oven can guarantee a perfect drying process in approximately 48 hours. The drying process does not limit the overall production any longer. Since someone will ask, I currently use a Harvest Right freeze drier.

However, we need to do comparative testing in order to choose the drying technique best suited to protecting terpene quality.

Since someone will also ask, I have not yet had the opportunity to test a vacuum oven.

## The Second Wash:

The excess ice from the first wash will melt to a large degree by the time you have filled the machine with water for the second wash; the water ratio, ice and trim will not yet be perfect but the grinding power of the ice will be greatly diminished. The sound of the ice will be your guide again; the sound should be more musical but still a little menacing. The second wash should be approximately 2 minutes.

The color of the water will be slightly lighter, the water should be cloudy with resin heads but not muddy green from grinded leaf matter.

Follow the step described in the First Wash for cleaning and collecting the resin of the different bags.

Gathering the sieved resin to dry will be similar every time, please note than separating washes on the drying rack is important, every one is a different dimension of ripeness, unique in itself.

## The Third Wash:

The machine will have almost no ice left by the third wash. It is recommended to add ice before filling the machine with water for a 3rd time so that little ice

remains once the machine is full. The sound of the ice will be a gentle clinking against the wall of the machine by now. As long as there are a few ice cubes floating, the water is ice cold, from that point forward add only a handful of ice cubes at a time.

The third wash should be approximately 3 to 4 minutes.

Follow the step described in the First Wash for cleaning and collecting the resin of the different bags.

Gathering the sieved resin to dry will be the same process each time.

## The Fourth to the Last Wash:

Add the ice before filling the machine so that little ice remains once the machine is filled as was done previously.

Every wash should be longer than the precedent by a minute or two.

Follow the steps described in the first wash for cleaning and collecting the resin of the different bags.

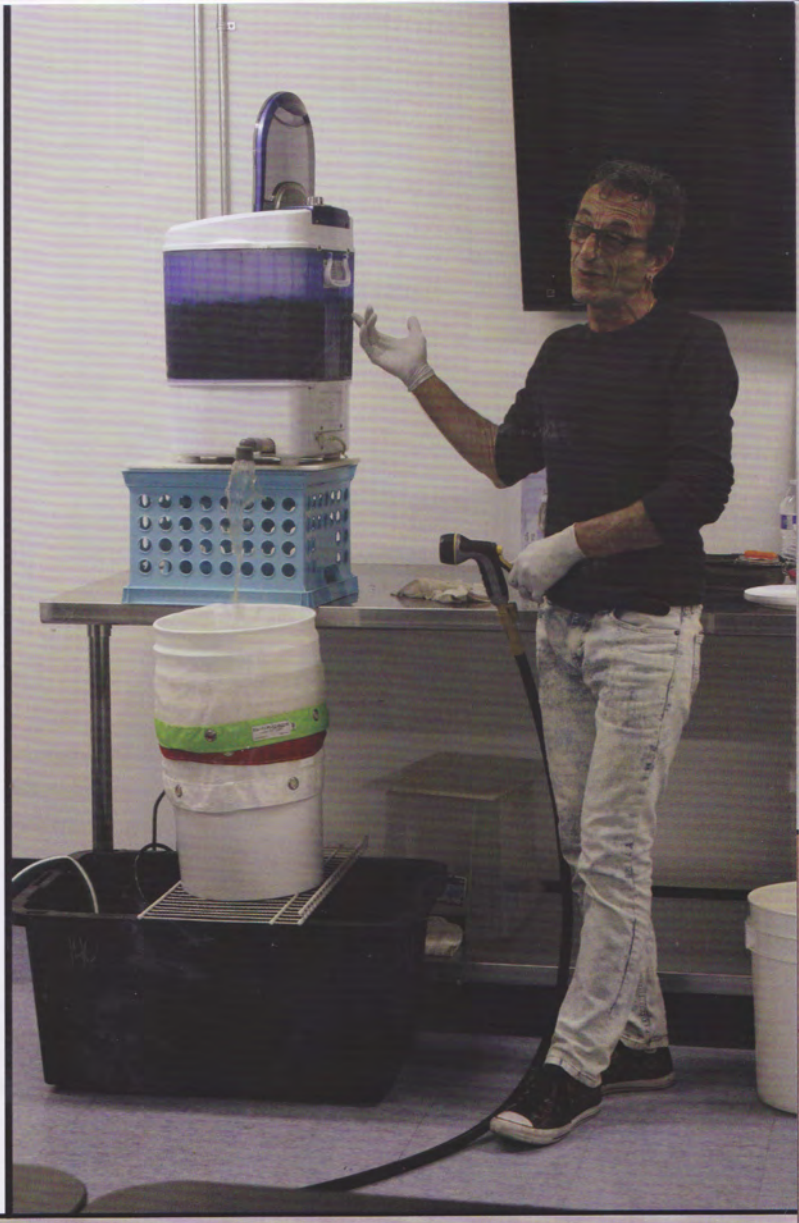
Gathering the sieved resin to dry will be similar every time. Separate washes on the drying rack.

Collect the resin from the 160-micron bag on the last wash.

## The Cleaning:

Empty the machine by hand, take the moving parts off and rinse with water.
Clean thoroughly all your bags and tools using ethanol alcohol.
Run the machine through a short cycle using a mixture of water and ISO alcohol to sanitize.

Recycle the used trim to be used as compost in a local garden.



## Pressing Frenchy Style

Room Requirements: similar to the drying room with stable humidity level of 35%, a temperature of 55°F, air ventilation, shelving.

Tools: Solid wooden table, an electric teakettle, a transparent wine bottle with all labeling removed, 2 insulated potholders, oven bags (some times referred to as turkey bags), and nitrile exam gloves.

Cut a turkey bag in four equal pieces.

Place the room dried loose trichomes or a freeze-dried resin patty in the turkey bag and constrain the pressing to a limited area by folding loosely the bag like an envelope.

Apply the bottle to the resin inside the turkey bag. High quality resin will start melting as soon as the bottle makes contact; slowly stretch out the resin like you would a piecrust. The amount of pressure necessary is also a good indicator of quality; the less pressure required the higher the quality.

Flip the bag over to change sides and continue to spread the resin like a piecrust slightly wider.

Flip the bag again and press the resin still wider.

After a few pressings on each side, the resin will fuse partially in a mass showing the lighter sandy texture of un-pressed resin heads and often different shades of color from light to darker amber, especially when multiple washes are mixed together.

After half a dozen more pressings, the resin will be like a pancake still showing some sandiness but with a more homogenous coloration and texture.

Wait a few minutes to let the resin cool down. It will be easier to snap the turkey bag off the resin. Fold it back into a mass and place it back in the turkey bag.

Press again with a bottle of newly boiled water.

The pressing process lasts 10 to 15 minutes and is repeated 3 times so that over 30 minutes optimal decarboxylation is completed. The color will be uniform and no sandiness should be apparent after the final pressing.

Rolling the resin into a compact ball between the palms of my gloved hands until I have a perfectly smooth surface is the last step of the pressing; it is an amazing resin preservation technique from the Nepal, traditionally done with Charas that I tailored to my needs. I let my "Temple Ball" rest on a drying rack for a week to ten days before storing. The mass of resin goes through a "chemical reaction stage" after pressing, a final polymerization of the terpenes and chlorophyll dissipation that needs time to "settle down" to a less-active stage.

Finally, I wrap the temple ball in natural cellophane (not polypropylene) put it in a glass container that is kept in a dark and cool place for aging.

Cannabinoids stability is influenced by light, temperature, humidity and oxygen availability; the choice of container and aging environment is crucial.

Most connoisseurs would agree that the aging process helps mellow the smoke and improves the flavors of Hashish but there is no scientific data available on the subject. However, there is plenty first-hand reports about quality Hashish as old as 12 years, 3 to 5 years being common. Like tobacco, wine, hard liquor or cheese whose essences are enhanced by aging, Hashish cured and aged to perfection has no rival in quality.

Frenchy Cannoli is a consultant, educator and writer in the Cannabis industry with special focus on hash making using traditional methods. Frenchy can be reached through his website at: www.frenchycannoli.com or seen on Instagram @frenchycannoli.