1. **WHAT IS IT?** Hopzoil™ is the result of taking only fresh hops at harvest time and steam-distilling them on the farm to capture all of those essential oils found in fresh hops in the field. It is distinctly different from traditional liquid extracts in both the raw ingredient (fresh hops vs. dried, soft pelletized hops) and the process. Because it is steam-distilled and not processed using a CO2, propylene glycol or other solvent-based extracts, there is no chance of residual solvent. It is one ingredient, made of only pure fresh hop oil.

2. **WHAT DOES IT DO?** AN AROMA ADDITION. Brewers use Hopzoil™ to add back the volatile, aromatic oils, which are only found to that extent in fresh hops. It has no bittering properties, as it is pure oil. It contains neither Alpha nor Beta acids.

3. **WHEN DO YOU ADD IT?** COLD SIDE ONLY. It is added exclusively on the cold side, typically post-fermentation and before commercial packaging. If it were added on the hot side, most of the oil would evaporate, due to the extraordinarily high levels of myrcene captured at the point before hops are traditionally dried and processed.

4. **IS IT A SUBSTITUTE FOR TRADITIONAL DRY-HOPPING?** YES. It can be. Think of it as “liquid dry-hopping”. The best results seen to date have been as either a partial or full replacement of pellets, for several reasons, with a couple of caveats: dry-hopping at standard recipe rates and then adding a full dosage of Hopzoil, would be effectively doubling the suggested dry-hopping rate (consumer reaction has ranged from “wonderful” to “overhopped”). “Spiking a keg” of an existing beer with Hopzoil has worked in small, controlled research tests, but in production, best results appear to either reduce or eliminate the amount of pellets used in dry-hopping, depending on what you are trying to achieve.

5. **DOES IT REQUIRE TTB APPROVAL?** No, it’s it’s full-strength form. The TTB does not require any approval, application, certification of the ingredient itself, nor formula submission for use of full-strength Hopzoil™ in beer.

6. **CAN IT BE A SUBSTITUTE FOR ANYTHING ELSE?** YES. Brewers cited it as a potential substitute for more expensive, proprietary hops that are sometimes challenging to obtain.

7. **WHAT IS THE DOSING RATE?** A LITTLE GOES A LONG WAY. The best dosing rate seems to be in the range of 5 ml per BBL, slightly plus or minus, depending on recipe, pellet substitution rate and regional preference. Local tastes and recipes can impact what the ideal dosing rate for each situation, however, that rate has provided the most consistent, positive results. We have seen ranges from 4.6 to 6.2 ml per BBL.

8. **WHAT IS THE DOSING PROCEDURE?** Of the several procedures tested, (more detail in the Dosing Procedure section), best results have been seen with the following:
   a. Always on the cold side
   b. Post-fermentation
   c. Dosed with some agitation (in-stream transfer from fermenter to bright tank is one recommended method)
   d. If substituting pellets altogether, no need to dry-hop or condition for days. Packaging from bright tank with only overnight conditioning also maximizes throughput.

9. **WHAT BEER STYLES PRODUCE THE BEST RESULTS?** Consensus is that hop-forward beers consistently produce the best results, as the fresh hop notes in particular are proving to complement an otherwise already solid IPA, and take it to another level. Brewers also made reference to a making a seasonal fresh hop ale, when fresh hops are not seasonally or locally available, making note that even if they did ship fresh hops in overnight, the freight is far more expensive than the hops themselves.

10. **DOES IT IMPACT THE YIELD PER BATCH?** YES, SIGNIFICANTLY. Brewers have reported increased yield per batch by reducing filtration losses when using Hopzoil as a full or partial substitute for pellets. Simultaneously, the end result can be a fresher tasting, more aromatic & flavorful beer. Increased yield depends on filtration method, reduction in pellets and other factors, but it can be significant.
11. **IS IT TRUE-TO-TYPE, PER HOP VARIETY?** NO. Or put another way, would Chinook Hopzoil have the identical oil profile as dried, processed Chinook pellets? Hopzoil will contain a much higher level of volatile myrcene, in particular, so it will not be identical to the aroma and flavor derived from dried, processed Chinook, in much the same way as fresh basil is not the same as dried basil. It is going to provide a more intense, fresher aroma and flavor.

12. **WHAT DOES IT DO TO THE AROMA AND FLAVOR PROFILE?** Observations made by brewers:
   
   a. “It fills in some of the flavor gaps in the hop profile.”
   
   b. “It offers the opportunity to make a fresh-hop-style beer, or straddling the line between that and an IPA, depending on how it is used.”
   
   c. “It does not taste artificial, strange or out of place. It smells and tastes ‘fresh’.”
   
   d. “It is a terrific balance of fresh hop aroma and pleasant bitterness with an overall hop impression that is spot on to the nature of the variety used.”
   
   e. “The resulting aroma is intense and unique and very pleasing to us brewers. It just doesn’t seem to fade. The guest feedback was very positive as well and some were able to identify the aroma as fruity or tropical fruit, and all thought it was very unique and unlike anything they had ever tasted.”

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