Hank Speaks… So Listen **by Hank Bienert**

Rediscovering a first love--the Immersion chiller.

The immersion chiller is often the novice brewer's first "technology based" piece of equipment. Simple and cheap to make and operate, it can be fine-tuned to a new level of efficiency.

1) Maintain maximum boil pot volume-instead of dropping it into the boil the last 10 minutes to sterilize which causes the already high boiling wort volume to rise, suspend it from an open weave frame (old oven shelf, old frig shelf, wire frame shelf, or custom made plastic/CPVC/metal frame). Tie 4 Cu wires at 4 equidistant balance points on the top and tie them to the bottom of a loop or ring which has another stout wire at the top as the anchor. Place the frame over the boiling wort with the ring below and the anchor fed through the center of the frame. Let out the anchor line until the IC sits a couple of inches above the surface which will be better than a dunk since steam is hotter and no space is taken up. At flame out, add any hops needed (BTW, this is a good time to sprinkle in sugar which will readily dissolve but not char since the flame which causes scorching is out; I frequently add sugar as do many British brewers.) Lower the IC until it is just below the surface.

2) Minimize the pot wall heat---one of the reasons counter flow chillers (or pumping for a time wort out of the boil pot) work so well is that the wort is taken away from the hot walls of the pot. The experiences of dropping dry ice into wort, watching it cool and then watching the temp rise again or simply putting one's hand on the side wall shows how much heat the pot holds. Remove any insulation, cover the jet of the burner with a can and hose the side walls for a couple of minutes.

Observation #1 (Reference volume=Hank's Observations on Hot Things-HOHT)--the bigger the temp difference between coolant and "coolee"(liquid cooled), the quicker the drop so now is the best time to splash the pot with hose water. Rethink then remake the IC. Most ICs are smoothly curving coils that spiral down to sit on the bottom of the pot.

HOHT- Observation #2-more turbulence, the less lamination and the more heat exchange. Convoluted Cu coils with elliptical twisted surfaces cool quicker than do straight runs so a kinky, various cross section shape coil is preferred.

HOHT Observation #3-heat rises. Why has the coil at the bottom except that the old design had it sitting on the bottom? Make a plani-spiral flat as wide as possible is so the entire top level cools and drops to bring up another level to be cooled. If anyone has access to some type of device it would nice to know how fast the levels move. The first foot of the IC contains for example 70 degree water and when contacting 180 degree wort cools QUICKLY (see HOHT,again Observation #1) and the next foot perhaps 75 and therefore little slower cooling and the next 79? But whatever the exact figures it is true that the first half of the coil offers faster cooling than does the second half.

Why not have 2 "first halves"? When St Arnold of Metz (patron saint of brewing) caused my 40' coil to snap at about the 20' line as I was realigning it I recognized that he had sent me a message and I made a double barreled IC. Since then I learned that a neighbor/fellow brewer has a triple barreled IC. Whirlpool after removing IC with lid as heat conductive as possible partially off or as in my case,a Cu salad bowl filled with ice that is set partially atop pot while whirlpool spins

Dealing with the seasons-My Jefferson Parish water dept. draws from the Mississippi and in mid-August the river temp is 85 which is about what the hose delivers. BTW, I make lagers in the summer since I can offer a constant 45 in the fridge easier than I can offer a constant 65 for ales.

Prechiller Heresy - prechilling the ***coolant*** in a Cu tube in ice bath does NOT really work since it requires the coolant to be kept to a trickle which defeats the rapid coolant flow needed; in the extreme of ZERO flow (a terrible situation for chilling the wort) the 84 degree coolant and 32 degree ice bath

average eventually so that 84+32 = 116; 116/2 = 58 result whereas pumping the 32 degree ice water delivers a coolant much cooler. A post chiller in which ***wort*** trickles does work well. If you are confident in your technique some sterilized dechlorinated ice cubes cool well with minor dilution but post chiller is much better approach.

Love the planet -In a place that gets 70" rain/yr., water is plentiful but it is not cheap and on general principles I save expelled water to clean utensils and water plants. After a few runs you will know how much water you circulate and can prepare enough vessels to save it. You know I am a friend of the Earth; the one at the Pontiff Playground parties or DHaus meetings who never uses the bathroom preferring to help the oak trees.

As always, constructive comments are welcome via the Hopline … for those uncomfortable with readin' n' writin' big words, please continue to mumble during meetings from the back row which is where I like to sit/sip/mumble...and where free beer should be delivered.

Thanks, Hank