

## ***Part mashes***

Part or mini mashes are small mashes that provide part of the fermentables for a batch of beer, the balance of the fermentables being provided by extract in some form—unhopped extracts are usually the go, but if you have any kits lying around by all means use them up. *Assume they have 25IBU.*

I mention the gear you need below as we get to each part of the brewing process. You have to heat up water to preheat a mash tun, to heat strike water and then to heat sparge water. An urn makes this really easy. you can buy an 8L plastic urn for a few dollars at Cash Converters etc. Metal urns cost more, but a 30L steel urn is a godsend to the masher, so start looking in the Catering Equipment part of the Yellow Pages and the Trading Post for second hand urns. If you can fit a thermostat to this urn you have the ideal hot liquor tank (HLT.)

I think you should aim for part mashes of about 3kg of grain, base plus cara-malts any chocolate, black patent and roast barley being cold steeped (see Chap 4 of Part 1 of this Manual.) With three kilograms you really notice the impact of the mash on the final beer flavor and body, and three kilos of grain and nine kilos of water have a thermal inertia that helps prevent mash temperature dropping off too quickly. If crystal malt is a significant part of the grist, steep that and add more basemalt to your tun.

There are two ways used to keep the mash at the required temperature. The easiest way is to use an esky as mash tun: pour 4-5L boiling water into the esky then close the lid and cover the esky with a blanket or couple of towels etc. This will preheat it. While the tun is preheating heat 9L of water to a strike temperature 10°C hotter than your desired mash temperature. Empty your esky mashtun, add the strike water then the grains and mix well—any dry pockets will only add starch and starch haze to your beer! Take the temperature of the mash, wait till the thermometer fixes on a reading, then add cold or boiling water if needed to achieve your target temperature. Close the esky, cover it well with towels, blankets or old coats etc and leave the mash to “rest” for an hour.

The second way is to mix the water and grain in a big pan on the stove, stirring all the time while the mash is heating to prevent scorching of the grain. You then turn the heat off, put the lid on the pan, cover the pan with towels etc, then check the temperature every 20 minutes or so, reheating while stirring as needed. Some people put the pan (no plastic handles!) in a low oven, perhaps even with the oven door ajar just a crack.

After the hour is up, take a few small droplets of wort out the tun, place it on a white plastic or china plate (NOT paper plates!) then add a small drop of iodine to the bit of wort. if the iodine turns bright blue-black on contact with the wort then you are in trouble: little or no conversion

of starch into sugar has taken place. If the iodine turns red mash for another 10-15 minutes and if the iodine does not change color your mash has converted all the starch into grain.

Congratulations, you are a masher!

Now, the enzymes are versatile and you would have to practically have boiled the grains to denature them! I (accidentally!) mashed at 74°C once, the resulting beer was radical in flavor with a sky high FG (1032 from an OG of 1084!) So, very likely your mash will have been successful: if not, add some more hot water, stir well, then close & cover the esky again for another 10-15 minutes. With practise you will find you can eventually omit the iodine test.

So, now we have a pan or esky full of grains, wort and lots of lovely malt sugars and flavors, what now? The sparge. Towards the end of the mash we heat 6 litres of (sparge) water to 80°C

Just before the sparge, we have to transfer the mash to our lauter tun. Lauter tun? A lauter tun is a container where the wort can be separated from the grains. For now, grab 3 biggish pans or foodgrade buckets and place a stainless steel colander in each (\$2 at Big W or Target.) Carefully ladle one third of the mash into each colander without spilling any wort. Sprinkle 2L of water over the grains in each colander, making sure all the grains get sprinkled with the water.

It is not really feasible to recirculate our wort, too much temperature loss would result. You need to sparge as quickly as possible without washing grains out the colander into the pan of wort.

Now we are ready for the boil. For your part mash kettle you need a fairly solid, quality stainless pan, preferably with sandwich base and of 15-20L capacity. I bought a 17L ss pan from Harris Scarfe in 2000, \$99. Great for making stocks and sauces, its rare present brew use is for decoctions and cereal mashes and the like. If you want to proceed to full mash and don't care about cooking then buy a cheap, thin ss pot from Target or BigW, about \$25. Please, do not ever, ever even think about carrying these pans full of boiling hot wort!

How much wort do we end up with? We added 9L to the mash tun, typically we will recover 4.5L of this, the rest being locked up in the grain. We then sparge with 6L of water, so we should end up with 10.5L of wort. With a nice big pan we could add some boiling water to the kettle, diluting the wort a bit to help with hop utilisation. You want to have plenty of headspace in the kettle, so that if the wort tries to boilover you have time to bat it down by turning the heat off or blowing on the rising foam or spraying it with some cold water. If headspace is limited, try adding 6 hop pellets to the kettle before the wort comes to a boil, this really helps reduce foaming.

We add the wort to the kettle, then bring the wort to the boil as soon as possible to denature those enzymes. When brewing with our Series 2 packs you did some simmering of wort, none of that stuff now! We want a vigorous boil as soon as we can manage it! As soon as the bottom of the kettle is covered with wort turn the heat on high. Add the rest of the wort, always keeping an eye on the wort in the kettle so you can prevent a boilover.

The boil should be a roiling one: traces of hops, break material etc should be seen shooting across the top of the wort and there should be a half inch welling up where the boil comes up.

You can ensure the roiling boil by having the kettle slightly off centre over the heat.

After fifteen minutes of boiling the foam tends to disappear. This is a good time to add the bittering hops, then at the appropriate time the flavor and aroma hops. A seventyfive minute boil like this is the minimum recommended boil time. Our Series 2 Packs we boiled for sixty minutes, but we simmered first while skimming that scum/foam. No time for simmering with a mash!

Towards the end of the boil add the liquid or dry extract and/or any sugar off heat to two litres of the wort, stir well then add the wort + extract/sugar slowly back to the main wort. Whirlpool, chill, strain into fermenter, top up with cold water, pitch yeast. Clean up. Relax with a homebrew. Your first mash brew is in the fermenter!

The next chapter gives you some recipes. You are now making beer so good you won't believe it! Continue the good work by using liquid yeasts, keeping the dried yeasts for back-up yeasts or for when a starter doesn't or smells funky.

### **Cereal Mash**

If using significant non-flaked/rolled/puffed unmalted adjunct a cereal mash is advisable. Mash in (also called 'dough-in') any caramelts and all but 1Kg of the base malt at 50°C in the mashtun. The other kilo of basemalt is put in a pan with 3L water and up to 500g of adjunct. Heat while stirring to 68°C, hold there for 30 minutes, then stirring all the time heat the cereal mash to a boil and boil it for 25 minutes, then mix in with the main mash to bring this to the mash temperature.

During the 68°C step, the alpha amylase enzyme is attacking the starch, degrading it and exposing more and more of the starch. The boil gelatinises the starch, so the enzymes from the main mash can convert it.

If using oatmeal or oatmeal, e.g. for an oatmeal stout, heat the cereal mash to 35°C and hold it there for 30 minutes, then proceed as described above. This helps breakdown beta-glucans (gums) that otherwise turn the sparge into a long drawn out, miserable affair.