

Lager Brewing – Hints and Tips

Here is a short guide of tips to lager brewing

Water Profile

Pilsen (Light Lager)

Ion Profile in ppm					
Ca ²⁺	Mg ²⁺	Na ⁺	Cl ⁻	SO ₄ ²⁻	HCO ₃ ⁻
7	3	2	5	5	25

This very low mineral water is the traditional water for Bohemian pilsner beers. Despite its low calcium content, great pilsner and Helles style beers can be brewed with it.

Malt

Use mostly pilsner malt but add some add some Carapils or something similar to the malt bill to add some body plus also help with head retention. I'd say around 7.5%. Contact me if you want more info on this.

Hops

For hops a traditional pilsner IBU can be as high as 40. However, you'll probably not want to that high. Who is this for? Maybe you can do 25-30 IBU's if you think a less bitter beer is better for your customers.

Yeast

Yeast as we said before use the W-34/70. It is a really clean yeast if used correctly. If you are using dry yeast.

Mashing In

I you can step mash, right? If you can then I would mash in at 44C. Then raise the temperature to 50C and rest for 20 minutes. Then raise to 65C and rest for 25 minutes. Then raise to 72C and rest for 15 minutes. Then raise to 78C and rest for 10 minutes.

You can then vorlauf to clear wort and then begin your collection to the kettle.

Please see the table below to see why I like this step mash process.

Temperature Range	Enzyme	Purpose	Warnings
30 – 52 °C (86 – 126 °F)	Beta Glucanase	Helps dissolve the starches for the next rests, making the sugar extraction more efficient	Bad-tasting acids are produced at low temperatures. Extended rests can cause “stuck mash.” Use very short rest, under 15 minutes
50 – 55 °C (122 – 131 °F)	Protease / Peptidase	Breaks down proteins, resulting in clearer beer and better head. Produces free amino nitrogen (FAN) which is good for yeast health	Too much FAN can produce off flavours later
62 – 67 °C (143 – 152 °F)	Beta Amylase	Produces fermentable sugars	Produces less flavoursome, non-fermentable sugars than Alpha Amylase
71–72 °C (154 - 162 °F)	Alpha Amylase	Produces non-fermentable, sweet sugars	Produces less fermentable sugars than Beta Amylase

Boil

For the boil you want a 90-minute boil. Add your bittering hops at 30 minutes (so they are in the boil for 60 minutes). You can add more hops for the aroma in the whirlpool.

Collection

I think you can collect for 12C for this yeast. Set your FV temp to 12.5. Make sure you add oxygen when collecting.

FV and Fermentation

You want to ferment at 12.5C for the first 55% of the fermentation. You can then let the beer free rise. Set the temp to 15C, then at 75% of the fermentation you can set the temp of the FV to 20C and let the fermentation free rise again.

This will help make the beer much cleaner and get rid of that sulphur from the yeast. Let the fermentation go all the way to the end. It will stop around 2.5 Plato depending on your original gravity.

When it has finished fermenting you can crash in 5C degree steps. It helps with settling out the yeast. So, if it is at 18C set to 15C (for 24 hours). Then set to 10C (for 48 hours). Then set to 5C (for 48 hours). Then set to 0C.

If you can leave the lager at 0C for 3 weeks minimum to help mature and round out the beer.