

# Lager

- Gravity **11.2 BLG**
- ABV **4.5 %**
- IBU **23**
- SRM **3.6**
- Style **Munich Helles**

## Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **27.8 liter(s)**

## Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **18.1 liter(s)**
- Total mash volume **23.2 liter(s)**

## Steps

- Temp **62 C**, Time **20 min**
- Temp **70 C**, Time **40 min**
- Temp **78 C**, Time **5 min**

## Mash step by step

- Heat up **18.1 liter(s)** of strike water to **68C**
- Add grains
- Keep mash **20 min** at **62C**
- Keep mash **40 min** at **70C**
- Keep mash **5 min** at **78C**
- Sparge using **14.9 liter(s)** of **76C** water or to achieve **27.8 liter(s)** of wort

## Fermentables

| Type  | Name                        | Amount         | Yield | EBC |
|-------|-----------------------------|----------------|-------|-----|
| Grain | Pilzneński                  | 4.5 kg (87.2%) | 81 %  | 4   |
| Grain | Weyermann - Carapils        | 0.5 kg (9.7%)  | 78 %  | 4   |
| Grain | Weyermann - Acidulated Malt | 0.16 kg (3.1%) | 80 %  | 6   |

## Hops

| Use for             | Name    | Amount | Time   | Alpha acid |
|---------------------|---------|--------|--------|------------|
| Boil                | Marynka | 20 g   | 60 min | 10 %       |
| Aroma (end of boil) | Sybilla | 20 g   | 5 min  | 3.5 %      |
| Whirlpool           | Sybilla | 20 g   | 5 min  | 3.5 %      |

## Yeasts

| Name                             | Type  | Form   | Amount  | Laboratory |
|----------------------------------|-------|--------|---------|------------|
| WLP833 - German Bock Lager Yeast | Lager | Liquid | 3000 ml | White Labs |