

## German Pilsner v3

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- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **38**
- SRM **3.7**
- Style **German Pilsner (Pils)**

### Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **0 %**
- Size with trub loss **20 liter(s)**
- Boil time **90 min**
- Evaporation rate **15 %/h**
- Boil size **28.2 liter(s)**

### Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **4 liter(s) / kg**
- Mash size **20 liter(s)**
- Total mash volume **25 liter(s)**

### Steps

- Temp **52 C**, Time **5 min**
- Temp **64 C**, Time **20 min**
- Temp **70 C**, Time **30 min**
- Temp **78 C**, Time **5 min**

### Mash step by step

- Heat up **20 liter(s)** of strike water to **56C**
- Add grains
- Keep mash **5 min** at **52C**
- Keep mash **20 min** at **64C**
- Keep mash **30 min** at **70C**
- Keep mash **5 min** at **78C**
- Sparge using **13.2 liter(s)** of **76C** water or to achieve **28.2 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	BESTMALZ - Best Pilsen	5 kg (100%)	80.5 %	4

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Hallertau Tradition	30 g	60 min	5 %
Boil	Tettnang	20 g	30 min	4 %
Aroma (end of boil)	Mandarina Bavaria	20 g	15 min	10 %
Aroma (end of boil)	Tettnang	20 g	5 min	6.1 %

### Yeasts

Name	Type	Form	Amount	Laboratory
FM704 Lutra Kveik	Lager	Liquid	100 ml	Wyeast Labs

### Extras

Type	Name	Amount	Use for	Time
Water Agent	Gips piwowarski	2 g	Mash	65 min

Water Agent	Kwas fosforowy	2 g	Mash	65 min
Water Agent	Chlorek wapnia, roztwór	4.5 g	Mash	65 min
Wartość wyliczona z 2g				
Fining	Whirlflock	1.25 g	Boil	10 min

## Notes

- Według kostki Palmera piwo jasne, o profilu zbalansowanym i średnie strukturze -stosunkiem siarczków do chlorków 1:1, wapń 100 ppm, alkaliczność resztkowa -100 (minus sto)  
Ph zacieru między 5.2 a 5.4  
Woda 1:1 kranowa ze zdeminalizowaną + sole  
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