

## German Pils

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- Gravity **12.4 BLG**
- ABV **5 %**
- IBU **30**
- SRM **3.9**
- Style **German Pilsner (Pils)**

### Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **10 %**
- Size with trub loss **22 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **28.8 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15 liter(s)**
- Total mash volume **20 liter(s)**

### Steps

- Temp **64 C**, Time **25 min**
- Temp **70 C**, Time **30 min**
- Temp **78 C**, Time **0 min**

### Mash step by step

- Heat up **15 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **25 min** at **64C**
- Keep mash **30 min** at **70C**
- Keep mash **0 min** at **78C**
- Sparge using **18.8 liter(s)** of **76C** water or to achieve **28.8 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	5 kg (100%)	80 %	5

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	lunga	20 g	60 min	11 %
Boil	Hallertau Tradition	15 g	30 min	6.3 %
Boil	Hallertau Tradition	35 g	0 min	6.3 %

### Yeasts

Name	Type	Form	Amount	Laboratory
FM31 Bawarska Dolina	Lager	Liquid	200 ml	Fermentum Mobile
Lutra OYL-071	Ale	Slant	50 ml	Omega

### Extras

Type	Name	Amount	Use for	Time
Water Agent	Gips piwowarski	9 g	Mash	60 min
Water Agent	Chlorek wapnia	3 g	Mash	60 min

Water Agent	Kwas mlekowy 80%	1.1 g	Mash	0 min
Fining	Whirflock	1 g	Boil	15 min

## Notes

- 1,1ml kwasu mlekowego 80% do 22l wody do wysładzania. 1 tabletki whirflocka na ostatnie 15 minut gotowania. Profil wody (chmielowy)  
Ca - 96,9/Mg - 4/Na - 4/Cl - 56,8/SO4 - 152,7/HCO3 - 41/  
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