

## Bitter #19

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- Gravity **9.8 BLG**
- ABV **3.8 %**
- IBU **33**
- SRM **9.3**
- Style **Standard/Ordinary Bitter**

### Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **26.5 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **12 liter(s)**
- Total mash volume **16 liter(s)**

### Steps

- Temp **62 C**, Time **45 min**
- Temp **72 C**, Time **45 min**

### Mash step by step

- Heat up **12 liter(s)** of strike water to **69C**
- Add grains
- Keep mash **45 min** at **62C**
- Keep mash **45 min** at **72C**
- Sparge using **18.5 liter(s)** of **76C** water or to achieve **26.5 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	malteurop Pilzneński	3.5 kg (87.5%)	81 %	4
Grain	Strzegom Karmel 300	0.3 kg (7.5%)	70 %	299
Grain	Weyermann - Pale Wheat Malt	0.2 kg (5%)	85 %	5

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Fuggles	30 g	60 min	4.5 %
Boil	Marynka	30 g	15 min	10 %

### Yeasts

Name	Type	Form	Amount	Laboratory
FM11 Wichrowe Wzgórza	Ale	Liquid	250 ml	Fermentum Mobile