

## pale ale 2020

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- Gravity **13.1 BLG**
- ABV **5.3 %**
- IBU **32**
- SRM **9**
- Style **American Pale Ale**

### Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **10 %**
- Size with trub loss **26.4 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **32.2 liter(s)**

### Mash information

- Mash efficiency **85 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **17.4 liter(s)**
- Total mash volume **23.2 liter(s)**

### Steps

- Temp **62 C**, Time **40 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **5 min**

### Mash step by step

- Heat up **17.4 liter(s)** of strike water to **69C**
- Add grains
- Keep mash **40 min** at **62C**
- Keep mash **30 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **20.6 liter(s)** of **76C** water or to achieve **32.2 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale	4 kg (69%)	80 %	6
Grain	Strzegom Pilzneński	1 kg (17.2%)	80 %	4
Grain	Strzegom Karmel 150	0.3 kg (5.2%)	75 %	150
Grain	caramel dark	0.5 kg (8.6%)	75 %	90

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Magnum goryczkowy	20 g	60 min	11.5 %
Boil	lunga goryczkowy	15 g	30 min	11 %
Boil	East Kent Goldings aromat	20 g	5 min	4.5 %

### Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M84 Bohemian Lager	Ale	Slant	100 ml	---