

# Bitter 13 hl

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- Gravity **11 BLG**
- ABV **4.4 %**
- IBU **30**
- SRM **5.9**
- Style **Special/Best/Premium Bitter**

## Batch size

- Expected quantity of finished beer **1200 liter(s)**
- Trub loss **5 %**
- Size with trub loss **1260 liter(s)**
- Boil time **60 min**
- Evaporation rate **1 %/h**
- Boil size **1272.6 liter(s)**

## Mash information

- Mash efficiency **90 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **604.5 liter(s)**
- Total mash volume **806 liter(s)**

## Steps

- Temp **68 C**, Time **45 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **2 min**

## Mash step by step

- Heat up **604.5 liter(s)** of strike water to **76C**
- Add grains
- Keep mash **45 min** at **68C**
- Keep mash **15 min** at **72C**
- Keep mash **2 min** at **78C**
- Sparge using **869.6 liter(s)** of **76C** water or to achieve **1272.6 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	175 kg (86.8%)	80 %	5
Grain	Strzegom Bursztynowy cookie	9 kg (4.5%)	70 %	49
Grain	Caramunich® typ I	17.5 kg (8.7%)	73 %	80

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Marynka	1000 g	60 min	9.5 %
Boil	Marynka	1000 g	15 min	9.5 %
Aroma (end of boil)	Marynka	2000 g	0 min	9.5 %