

# Carmel Cristal Ale

- Gravity **12.4 BLG**
- ABV **5 %**
- IBU **41**
- SRM **8.3**
- Style **American Pale Ale**

## Batch size

- Expected quantity of finished beer **9 liter(s)**
- Trub loss **5 %**
- Size with trub loss **9.4 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **11.3 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **6.8 liter(s)**
- Total mash volume **9.1 liter(s)**

## Steps

- Temp **65 C**, Time **40 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **10 min**

## Mash step by step

- Heat up **6.8 liter(s)** of strike water to **72.5C**
- Add grains
- Keep mash **40 min** at **65C**
- Keep mash **30 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **6.8 liter(s)** of **76C** water or to achieve **11.3 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	1.5 kg (66.1%)	80 %	6
Grain	Barley, Flaked	0.5 kg (22%)	70 %	4
Grain	Viking Caramel Pale	0.25 kg (11%)	80 %	8
Grain	Jęczmień palony weyermann	0.02 kg (0.9%)	55 %	1200

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	zula	20 g	60 min	7 %
Boil	Crystal	10 g	20 min	4.6 %
Dry Hop	Crystal	15 g	5 day(s)	4.6 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Dry	10 g	---

## Extras

Type	Name	Amount	Use for	Time
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Fining	whirflock	10 g	Boil	15 min
Water Agent	gips piwowarski	2 g	Mash	60 min