

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 |
|------|------|--------|---------|------|
|------|------|--------|---------|------|

| | | | | |
|-------------|-----------------|------|------|--------|
| Fining | whirflock | 10 g | Boil | 15 min |
| Water Agent | gips piwowarski | 2 g | Mash | 60 min |