

# Bitter

- Gravity **13.3 BLG**
- ABV **5.5 %**
- IBU **81**
- SRM **10**

## Batch size

- Expected quantity of finished beer **30 liter(s)**
- Trub loss **5 %**
- Size with trub loss **31.5 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **38 liter(s)**

## Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **30.1 liter(s)**
- Total mash volume **38.7 liter(s)**

## Steps

- Temp **67 C**, Time **60 min**
- Temp **78 C**, Time **5 min**

## Mash step by step

- Heat up **30.1 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **60 min** at **67C**
- Keep mash **5 min** at **78C**
- Sparge using **16.5 liter(s)** of **76C** water or to achieve **38 liter(s)** of wort

## Fermentables

| Type  | Name                 | Amount       | Yield | EBC |
|-------|----------------------|--------------|-------|-----|
| Grain | Viking Pale Ale malt | 6 kg (69.8%) | 80 %  | 5   |
| Grain | Strzegom Karmel 150  | 0.6 kg (7%)  | 75 %  | 150 |
| Grain | Viking Munich Malt   | 2 kg (23.3%) | 78 %  | 22  |

## Hops

| Use for | Name     | Amount | Time     | Alpha acid |
|---------|----------|--------|----------|------------|
| Boil    | Marynka  | 30 g   | 60 min   | 10 %       |
| Boil    | Fuggles  | 30 g   | 60 min   | 5 %        |
| Boil    | Golding  | 30 g   | 60 min   | 6.3 %      |
| Boil    | Bramling | 50 g   | 60 min   | 7 %        |
| Boil    | Fuggles  | 20 g   | 15 min   | 5 %        |
| Boil    | Golding  | 20 g   | 15 min   | 6.3 %      |
| Boil    | Bramling | 10 g   | 15 min   | 7 %        |
| Dry Hop | Fuggles  | 30 g   | 6 day(s) | 4.2 %      |
| Dry Hop | Golding  | 30 g   | 6 day(s) | 3.8 %      |

## Yeasts

| Name | Type | Form | Amount | Laboratory |
|------|------|------|--------|------------|
|------|------|------|--------|------------|

|             |     |     |      |           |
|-------------|-----|-----|------|-----------|
| Safale S-04 | Ale | Dry | 22 g | Fermentis |
|-------------|-----|-----|------|-----------|