

# Bitter

- Gravity **14.5 BLG**
- ABV ---
- IBU **40**
- SRM **15**
- Style **Extra Special/Strong Bitter (English Pale Ale)**

## Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **11.2 %/h**
- Boil size **28.1 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **21 liter(s)**
- Total mash volume **27 liter(s)**

## Steps

- Temp **52 C**, Time **10 min**
- Temp **62 C**, Time **45 min**
- Temp **72 C**, Time **45 min**
- Temp **76 C**, Time **5 min**

## Mash step by step

- Heat up **21 liter(s)** of strike water to **56.6C**
- Add grains
- Keep mash **10 min** at **52C**
- Keep mash **45 min** at **62C**
- Keep mash **45 min** at **72C**
- Keep mash **5 min** at **76C**
- Sparge using **13.1 liter(s)** of **76C** water or to achieve **28.1 liter(s)** of wort

## Fermentables

| Type  | Name                 | Amount        | Yield | EBC |
|-------|----------------------|---------------|-------|-----|
| Grain | Strzegom Pale Ale    | 1.5 kg (25%)  | 79 %  | 6   |
| Grain | Monachijski          | 3 kg (50%)    | 80 %  | 16  |
| Grain | Strzegom Bursztynowy | 0.5 kg (8.3%) | 70 %  | 30  |
| Grain | Karmelowy Czerwony   | 1 kg (16.7%)  | 75 %  | 59  |

## Hops

| Use for             | Name       | Amount | Time     | Alpha acid |
|---------------------|------------|--------|----------|------------|
| Boil                | Pilgrim    | 30 g   | 60 min   | 8.1 %      |
| Aroma (end of boil) | Fusion     | 30 g   | 30 min   | 6.5 %      |
| Dry Hop             | Challenger | 30 g   | 7 day(s) | 5.8 %      |

## Yeasts

| Name  | Type | Form  | Amount | Laboratory |
|-------|------|-------|--------|------------|
| us-05 | Ale  | Slant | 50 ml  | PO OCE APA |