

## bitter drugie podejście do tematu

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- Gravity **10.2 BLG**
- ABV **4.1 %**
- IBU **30**
- SRM **8.1**
- Style **Extra Special/Strong Bitter (English Pale Ale)**

### Batch size

- Expected quantity of finished beer **24 liter(s)**
- Trub loss **5 %**
- Size with trub loss **25.2 liter(s)**
- Boil time **60 min**
- Evaporation rate **5 %/h**
- Boil size **30.4 liter(s)**

### Mash information

- Mash efficiency **68 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **19.8 liter(s)**
- Total mash volume **25.4 liter(s)**

### Steps

- Temp **67 C**, Time **50 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **10 min**

### Mash step by step

- Heat up **19.8 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **50 min** at **67C**
- Keep mash **15 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **16.3 liter(s)** of **76C** water or to achieve **30.4 liter(s)** of wort

### Fermentables

| Type  | Name                 | Amount         | Yield | EBC |
|-------|----------------------|----------------|-------|-----|
| Grain | Viking Pale Ale malt | 4.2 kg (74.3%) | 80 %  | 5   |
| Grain | Strzegom Wiedeński   | 0.5 kg (8.8%)  | 79 %  | 10  |
| Grain | Fawcett - Brown      | 0.3 kg (5.3%)  | 72 %  | 180 |
| Grain | Melanoiden Malt      | 0.5 kg (8.8%)  | 80 %  | 39  |
| Grain | tostowy              | 0.15 kg (2.7%) | 80 %  | 10  |

### Hops

| Use for   | Name               | Amount | Time   | Alpha acid |
|-----------|--------------------|--------|--------|------------|
| Boil      | East Kent Goldings | 40 g   | 60 min | 5.1 %      |
| Boil      | East Kent Goldings | 30 g   | 30 min | 5 %        |
| Whirlpool | East Kent Goldings | 40 g   | 0 min  | 5.1 %      |
| Whirlpool | Fuggles            | 50 g   | 0 min  | 4.5 %      |

### Yeasts

| Name                           | Type | Form   | Amount  | Laboratory |
|--------------------------------|------|--------|---------|------------|
| wyeast 1469 west Yorkshire ale | Ale  | Liquid | 1000 ml | wyeast     |
| starter drożdżowy              |      |        |         |            |

## Extras

| Type        | Name     | Amount | Use for | Time   |
|-------------|----------|--------|---------|--------|
| Water Agent | gips     | 5 g    | Boil    | 10 min |
| Fining      | wirflook | 10 g   | Boil    | 15 min |