

## 49 FES

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- Gravity **17.5 BLG**
- ABV **7.5 %**
- IBU **30**
- SRM **43.3**

### Batch size

- Expected quantity of finished beer **18.5 liter(s)**
- Trub loss **5 %**
- Size with trub loss **19.4 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **23.8 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3.31 liter(s) / kg**
- Mash size **21 liter(s)**
- Total mash volume **27.4 liter(s)**

### Steps

- Temp **66 C**, Time **30 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **10 min**

### Mash step by step

- Heat up **21 liter(s)** of strike water to **73C**
- Add grains
- Keep mash **30 min** at **66C**
- Keep mash **30 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **9.2 liter(s)** of **76C** water or to achieve **23.8 liter(s)** of wort

### Fermentables

| Type  | Name                       | Amount         | Yield | EBC  |
|-------|----------------------------|----------------|-------|------|
| Grain | Strzegom Pale Ale          | 4.3 kg (67.7%) | 79 %  | 6    |
| Grain | Monachijski                | 1.4 kg (22%)   | 80 %  | 16   |
| Grain | Jęczmień palony            | 0.3 kg (4.7%)  | 55 %  | 1500 |
| Grain | Czekoladowy                | 0.25 kg (3.9%) | 60 %  | 1500 |
| Grain | Strzegom Czekoladowy jasny | 0.1 kg (1.6%)  | 68 %  | 400  |

### Hops

| Use for | Name    | Amount | Time   | Alpha acid |
|---------|---------|--------|--------|------------|
| Boil    | Warrior | 20 g   | 60 min | 15.5 %     |

### Yeasts

| Name                        | Type | Form   | Amount | Laboratory       |
|-----------------------------|------|--------|--------|------------------|
| FM54 Gorączka kalifornijska | Ale  | Liquid | 30 ml  | Fermentum Mobile |