

- Gravity **14.7 BLG**
- ABV ---
- IBU **45**
- SRM **21.9**
- Style **American IPA**

### Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **24.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **29 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **17.4 liter(s)**
- Total mash volume **23.2 liter(s)**

### Steps

- Temp **52 C**, Time **10 min**
- Temp **64 C**, Time **40 min**
- Temp **71 C**, Time **30 min**
- Temp **78 C**, Time **5 min**

### Mash step by step

- Heat up **17.4 liter(s)** of strike water to **57.3C**
- Add grains
- Keep mash **10 min** at **52C**
- Keep mash **40 min** at **64C**
- Keep mash **30 min** at **71C**
- Keep mash **5 min** at **78C**
- Sparge using **17.4 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

### Fermentables

| Type  | Name                       | Amount         | Yield | EBC |
|-------|----------------------------|----------------|-------|-----|
| Grain | Pilzneński                 | 3.2 kg (55.2%) | 81 %  | 4   |
| Grain | Strzegom Monachijski typ I | 1 kg (17.2%)   | 79 %  | 16  |
| Grain | Strzegom Karmel 150        | 0.7 kg (12.1%) | 75 %  | 150 |
| Grain | Jęczmień palony            | 0.1 kg (1.7%)  | 55 %  | 985 |
| Grain | Żytni                      | 0.8 kg (13.8%) | 85 %  | 8   |

### Hops

| Use for             | Name       | Amount | Time   | Alpha acid |
|---------------------|------------|--------|--------|------------|
| Boil                | Centennial | 15 g   | 50 min | 10.5 %     |
| Boil                | Marynka    | 15 g   | 45 min | 9.6 %      |
| Boil                | Amarillo   | 15 g   | 40 min | 9.5 %      |
| Aroma (end of boil) | Cascade    | 20 g   | 10 min | 6 %        |
| Aroma (end of boil) | Willamette | 20 g   | 5 min  | 5 %        |
| Aroma (end of boil) | Simcoe     | 10 g   | 0 min  | 13.2 %     |

**Yeasts**

| Name         | Type | Form | Amount | Laboratory |
|--------------|------|------|--------|------------|
| Safale US-05 | Ale  | Dry  | 11 g   | Fermentis  |