

# Czarna dziura

- Gravity **13.1 BLG**
- ABV ---
- IBU **26**
- SRM **53.7**
- Style **Dry Stout**

## Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **29 liter(s)**

## Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **16.6 liter(s)**
- Total mash volume **21.4 liter(s)**

## Steps

- Temp **68 C**, Time **60 min**
- Temp **76 C**, Time **5 min**

## Mash step by step

- Heat up **16.6 liter(s)** of strike water to **74.9C**
- Add grains
- Keep mash **60 min** at **68C**
- Keep mash **5 min** at **76C**
- Sparge using **17.2 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

## Fermentables

| Type    | Name                   | Amount         | Yield | EBC  |
|---------|------------------------|----------------|-------|------|
| Grain   | Strzegom Pilznieński   | 4 kg (76.2%)   | 80 %  | 4    |
| Grain   | Jęczmień palony        | 0.25 kg (4.8%) | 55 %  | 1100 |
| Grain   | Weyermann - Carafa II  | 0.15 kg (2.9%) | 70 %  | 1100 |
| Grain   | Pszeniczny czekoladowy | 0.35 kg (6.7%) | 68 %  | 1000 |
| Adjunct | płatki jęczmienne      | 0.5 kg (9.5%)  | --- % | 3    |

## Hops

| Use for             | Name    | Amount | Time   | Alpha acid |
|---------------------|---------|--------|--------|------------|
| Boil                | Marynka | 15 g   | 50 min | 10 %       |
| Aroma (end of boil) | Marynka | 15 g   | 20 min | 10 %       |

## Yeasts

| Name        | Type | Form | Amount | Laboratory |
|-------------|------|------|--------|------------|
| Safale S-04 | Ale  | Dry  | 11 g   | Safale     |