

## Mała Czarna #4 - Irish Stout - Browar na Wyżynie

- Gravity **10 BLG**
- ABV **4 %**
- IBU **30**
- SRM **38.6**
- Style **Dry Stout**

### Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **4 %**
- Size with trub loss **21.8 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **25.2 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **13.7 liter(s)**
- Total mash volume **17.6 liter(s)**

### Steps

- Temp **66 C**, Time **45 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **10 min**

### Mash step by step

- Heat up **13.7 liter(s)** of strike water to **72.5C**
- Add grains
- Keep mash **45 min** at **66C**
- Keep mash **15 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **15.4 liter(s)** of **76C** water or to achieve **25.2 liter(s)** of wort

### Fermentables

| Type  | Name                              | Amount         | Yield  | EBC  |
|-------|-----------------------------------|----------------|--------|------|
| Grain | wiedeński Viking Malt             | 3 kg (76.9%)   | 79 %   | 9    |
| Grain | Caffe Castle Malting              | 0.5 kg (12.8%) | 75.5 % | 500  |
| Grain | Carafa® III Malt Weyermann®       | 0.2 kg (5.1%)  | 65 %   | 1400 |
| Grain | pszeniczny czekoladowy Weyermann® | 0.2 kg (5.1%)  | 65 %   | 1200 |

### Hops

| Use for    | Name                          | Amount | Time    | Alpha acid |
|------------|-------------------------------|--------|---------|------------|
| First Wort | lunga (Polishhops) - granulát | 20 g   | 100 min | 10 %       |

### Yeasts

| Name                 | Type | Form  | Amount | Laboratory       |
|----------------------|------|-------|--------|------------------|
| FM12 W szkocką kratę | Ale  | Slant | 300 ml | Fermentum Mobile |

### Extras

| Type        | Name                             | Amount | Use for | Time   |
|-------------|----------------------------------|--------|---------|--------|
| Water Agent | chlorek wapnia                   | 2 g    | Mash    | 70 min |
| Water Agent | gips                             | 3 g    | Mash    | 70 min |
| Water Agent | kreda                            | 15 g   | Mash    | 70 min |
| Water Agent | Kwas fosforowy 75% (zacier)      | 7 g    | Mash    | 70 min |
| Water Agent | Kwas fosforowy 75% (wysładzanie) | 2 g    | Mash    | 70 min |
| Fining      | mech irlandzki                   | 2 g    | Boil    | 15 min |

## Notes

- <https://www.brewersfriend.com/mash-chemistry-and-brewing-water-calculator/?id=0X0Y7LN>  
 Ca+2 Mg+2 Na+ Cl- SO4-2 HCO  
 140.0 0.0 131.0 49.1 96.7 285.724  
 SO42-/Cl- ratio: 2.0 Little Bitter  
 Mash pH \*: 5.44  
*Jan 21, 2020, 10:55 AM*