

## Drwal (brokreacja)

- Gravity **15.9 BLG**
- ABV **6.7 %**
- IBU **75**
- SRM **28.9**
- Style **American Stout**

### Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **26.4 liter(s)**

### Mash information

- Mash efficiency **85 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **17.9 liter(s)**
- Total mash volume **23.8 liter(s)**

### Steps

- Temp **67 C**, Time **60 min**
- Temp **78 C**, Time **10 min**

### Mash step by step

- Heat up **17.9 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **60 min** at **67C**
- Keep mash **10 min** at **78C**
- Sparge using **14.5 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

### Fermentables

| Type  | Name                             | Amount          | Yield | EBC  |
|-------|----------------------------------|-----------------|-------|------|
| Grain | Viking Pale Ale malt             | 3.29 kg (55.4%) | 80 %  | 5    |
| Grain | Żytni                            | 1.12 kg (18.8%) | 85 %  | 8    |
| Grain | Strzegom Monachijski typ II      | 0.82 kg (13.9%) | 79 %  | 22   |
| Grain | Carafa III                       | 0.24 kg (4%)    | 70 %  | 1034 |
| Grain | Karmelowy żytni Strzegom         | 0.24 kg (4%)    | 75 %  | 150  |
| Grain | Fawcett - Pszeniczny Czekoladowy | 0.24 kg (4%)    | 73 %  | 1001 |

### Hops

| Use for | Name                   | Amount  | Time     | Alpha acid |
|---------|------------------------|---------|----------|------------|
| Boil    | Columbus/Tomahawk/Zeus | 17.65 g | 45 min   | 15.5 %     |
| Boil    | Citra                  | 17.65 g | 30 min   | 12 %       |
| Boil    | Simcoe                 | 17.65 g | 30 min   | 13.2 %     |
| Boil    | Citra                  | 17.65 g | 15 min   | 12 %       |
| Boil    | Simcoe                 | 17.65 g | 15 min   | 13.2 %     |
| Dry Hop | Simcoe                 | 35.29 g | 7 day(s) | 13.2 %     |
| Dry Hop | Citra                  | 35.29 g | 7 day(s) | 12 %       |

## Yeasts

| Name         | Type | Form | Amount  | Laboratory |
|--------------|------|------|---------|------------|
| Safale US-05 | Ale  | Dry  | 13.53 g | Fermentis  |

## Notes

- 67st - słody jasne  
78st - słody ciemne  
chmelenie na zimno w temp. 14-15 st.  
*Sep 26, 2017, 12:36 PM*