

Polskie ciemne

- Gravity **10.5 BLG**
- ABV **4.2 %**
- IBU **20**
- SRM **3.2**
- Style **Grodziskie/Graetzer**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **10 %**
- Size with trub loss **23 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **27.5 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **6 liter(s) / kg**
- Mash size **27 liter(s)**
- Total mash volume **31.5 liter(s)**

Steps

- Temp **67 C**, Time **60 min**
- Temp **78 C**, Time **1 min**

Mash step by step

- Heat up **27 liter(s)** of strike water to **70.9C**
- Add grains
- Keep mash **60 min** at **67C**
- Keep mash **1 min** at **78C**
- Sparge using **5 liter(s)** of **76C** water or to achieve **27.5 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|------------------------------------|----------------|-------|-----|
| Grain | Grodziski pszoniczny wędzony dębem | 3 kg (66.7%) | 80 % | 3 |
| Grain | Strzegom Pilzneński | 1 kg (22.2%) | 80 % | 4 |
| Grain | Strzegom Wiedeński | 0.5 kg (11.1%) | 79 % | 10 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|-----------|---------|--------|----------|------------|
| Boil | Magnum | 10 g | 60 min | 11 % |
| Whirlpool | Zula | 30 g | 15 min | 10 % |
| Dry Hop | lunga | 30 g | 3 day(s) | 10.7 % |
| Dry Hop | Zula | 50 g | 3 day(s) | 10 % |
| Dry Hop | Cascade | 50 g | 3 day(s) | 7.2 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|----------------|------|------|--------|------------|
| fermentis K-97 | Ale | Dry | 11.5 g | Fermentis |

Extras

| Type | Name | Amount | Use for | Time |
|--------|-----------|--------|---------|--------|
| Fining | whirflock | 5 g | Boil | 10 min |