

czarne kozły

- Gravity **20.7 BLG**
- ABV ---
- IBU **22**
- SRM **31.8**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **90 min**
- Evaporation rate **10 %/h**
- Boil size **26.4 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **2.7 liter(s) / kg**
- Mash size **23 liter(s)**
- Total mash volume **31.5 liter(s)**

Steps

- Temp **44 C**, Time **20 min**
- Temp **64 C**, Time **60 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **23 liter(s)** of strike water to **48.4C**
- Add grains
- Keep mash **20 min** at **44C**
- Keep mash **60 min** at **64C**
- Keep mash **20 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **11.9 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|----------------|-------|------|
| Grain | Pilzneński | 3 kg (35.3%) | 81 % | 4 |
| Grain | Strzegom Pszeniczny | 2 kg (23.5%) | 81 % | 6 |
| Grain | Strzegom Monachijski typ II | 2 kg (23.5%) | 79 % | 22 |
| Grain | Viking Pale Ale malt | 1 kg (11.8%) | 80 % | 5 |
| Grain | Strzegom pszenica prażona | 0.25 kg (2.9%) | 70 % | 1000 |
| Grain | Strzegom Czekoladowy ciemny | 0.25 kg (2.9%) | 68 % | 1200 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|---------|--------|--------|------------|
| Boil | Marynka | 35 g | 45 min | 7.7 % |
| Boil | Marynka | 15 g | 5 min | 7.7 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|--------------|------|------|--------|------------|
| Safbrew S-33 | Ale | Dry | 11.5 g | Safbrew |

| | | | | |
|---------------|-------|-----|--------|---------|
| Safbrew WB-06 | Wheat | Dry | 11.5 g | Safbrew |
|---------------|-------|-----|--------|---------|