

czarne kopyto

- Gravity **18.9 BLG**
- ABV **8.2 %**
- IBU **31**
- SRM **45**
- Style **Baltic Porter**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.3 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **29.8 liter(s)**
- Total mash volume **38.3 liter(s)**

Steps

- Temp **55 C**, Time **5 min**
- Temp **64 C**, Time **30 min**
- Temp **72 C**, Time **50 min**

Mash step by step

- Heat up **29.8 liter(s)** of strike water to **60C**
- Add grains
- Keep mash **5 min** at **55C**
- Keep mash **30 min** at **64C**
- Keep mash **50 min** at **72C**
- Sparge using **4 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	2 kg (23.5%)	80 %	4
Grain	Strzegom Wiedeński	2 kg (23.5%)	79 %	10
Grain	Strzegom Monachijski typ I	3 kg (35.3%)	79 %	16
Grain	Strzegom Karmel 600	0.5 kg (5.9%)	68 %	601
Grain	Strzegom Karmel 30	0.5 kg (5.9%)	75 %	30
Grain	Strzegom Barwiący	0.5 kg (5.9%)	68 %	1300

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Marynka	40 g	60 min	8 %
Boil	Lublin (Lubelski)	30 g	10 min	3.7 %

Yeasts

Name	Type	Form	Amount	Laboratory
Saflager S-23	Lager	Dry	22 g	Fermentis Division of S.I.Lesaffre