

# czarne kozły

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- 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
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