

# Czarne zloto

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- Gravity **15.2 BLG**
- ABV **6.3 %**
- IBU **30**
- SRM **17.7**
- Style **Dark American Lager**

## Batch size

- Expected quantity of finished beer **20.5 liter(s)**
- Trub loss **10 %**
- Size with trub loss **23.6 liter(s)**
- Boil time **75 min**
- Evaporation rate **15 %/h**
- Boil size **32.2 liter(s)**

## Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **4.2 liter(s) / kg**
- Mash size **28.4 liter(s)**
- Total mash volume **35.2 liter(s)**

## Steps

- Temp **66 C**, Time **60 min**
- Temp **72 C**, Time **15 min**
- Temp **76 C**, Time **10 min**

## Mash step by step

- Heat up **28.4 liter(s)** of strike water to **71.5C**
- Add grains
- Keep mash **60 min** at **66C**
- Keep mash **15 min** at **72C**
- Keep mash **10 min** at **76C**
- Sparge using **10.6 liter(s)** of **76C** water or to achieve **32.2 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	lager	5 kg (72.9%)	80.5 %	3
Grain	Briess - Vienna Malt	0.5 kg (7.3%)	77.5 %	7
Grain	Briess - Pilsen Malt	0.5 kg (7.3%)	80.5 %	2
Grain	Biscuit Malt	0.38 kg (5.5%)	79 %	45
Grain	Caraaroma	0.2 kg (2.9%)	78 %	400
Grain	carafa special 1	0.08 kg (1.2%)	77 %	1100
Grain	Briess - Chocolate Malt	0.1 kg (1.5%)	60 %	1050
Adjunct	Rice Hulls	0.1 kg (1.5%)	1 %	0

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Amarillo	30 g	5 min	8 %
Boil	Cascade	30 g	5 min	8.1 %
Boil	El Dorado	30 g	5 min	11 %
Boil	Simcoe	15 g	60 min	13.1 %
Dry Hop	Cascade	30 g	4 day(s)	8.1 %

Dry Hop	El Dorado	30 g	4 day(s)	11 %
Dry Hop	Amarillo	30 g	4 day(s)	8 %

## Yeasts

Name	Type	Form	Amount	Laboratory
WLP838 - Southern German Lager Yeast	Lager	Liquid	350 ml	White Labs

## Extras

Type	Name	Amount	Use for	Time
Water Agent	calcium chloride	9.05 g	Mash	60 min
Water Agent	calcium sulphate	8.14 g	Mash	60 min
Water Agent	lactic acid 80%	3 g	Mash	60 min

## Notes

- Woda do zacierania 28 litrow do tego calcium chloride 6.67 g i calcium sulphate 6 g i 2 ml lactic acid. Do wysladzania 12 litrow wody calcium chloride 2.86 g i calcium sulphate 2.56 g i 1 ml lactic acid.  
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