

# STOUT HARDKOROWY POPRAWKA

- Gravity **15 BLG**
- ABV **6.2 %**
- IBU **57**
- SRM **49.8**
- Style **American Stout**

## 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 **22 %/h**
- Boil size **28.1 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **18.3 liter(s)**
- Total mash volume **24.4 liter(s)**

## Steps

- Temp **67 C**, Time **70 min**
- Temp **76 C**, Time **10 min**

## Mash step by step

- Heat up **18.3 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **70 min** at **67C**
- Keep mash **10 min** at **76C**
- Sparge using **15.9 liter(s)** of **76C** water or to achieve **28.1 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Pale Ale Maris Otter	3.2 kg (52.5%)	80 %	5
Grain	Strzegom Monachijski typ I	1 kg (16.4%)	79 %	16
Grain	słód kawowy Belgia	0.5 kg (8.2%)	75.5 %	500
Grain	żytni czekoladowy Weyermann	0.5 kg (8.2%)	73 %	700
Grain	Płatki owsiane	0.3 kg (4.9%)	85 %	3
Grain	Słód Midnight Wheat Briess	0.2 kg (3.3%)	73 %	1100
Grain	palony Black Bestmalz	0.2 kg (3.3%)	73.5 %	1200
Grain	Strzegom Karmel 600	0.2 kg (3.3%)	68 %	601

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Columbus/Tomahawk/Zeus	20 g	60 min	16.8 %
Boil	Cascade	10 g	20 min	6.7 %
Boil	Simcoe	10 g	20 min	13.3 %
Boil	Cascade	20 g	7 min	6.7 %

Boil	Simcoe	20 g	7 min	13.3 %
Aroma (end of boil)	Cascade	10 g	1 min	6.7 %
Aroma (end of boil)	Simcoe	10 g	1 min	13.3 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M44 US West Coast	Ale	Dry	11 g	Mangrove Jack's

## Extras

Type	Name	Amount	Use for	Time
Water Agent	kreda	5 g	Mash	80 min
Fining	mech	5 g	Boil	15 min