

# Hoppy sour ale

- Gravity **13.6 BLG**
- ABV **5.6 %**
- IBU **5**
- SRM **4.2**
- Style **Berliner Weisse**

## Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **24.1 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **32.2 liter(s)**

## Mash information

- Mash efficiency **73 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **22.5 liter(s)**
- Total mash volume **30 liter(s)**

## Steps

- Temp **62 C**, Time **45 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **1 min**

## Mash step by step

- Heat up **22.5 liter(s)** of strike water to **69C**
- Add grains
- Keep mash **45 min** at **62C**
- Keep mash **30 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **17.2 liter(s)** of **76C** water or to achieve **32.2 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	5.5 kg (73.3%)	80 %	4
Grain	Słód owsiany Fawcett	1 kg (13.3%)	61 %	5
Grain	Płatki pszeniczne	0.5 kg (6.7%)	60 %	3
Grain	Płatki owsiane	0.5 kg (6.7%)	60 %	3

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	lunga	5 g	60 min	11 %
Whirlpool	Sabro	100 g	0 min	15 %
Dry Hop	Wai-iti	100 g	2 day(s)	4.1 %
Dry Hop	Michigan Copper	100 g	2 day(s)	8.5 %
Dry Hop	Mackinac	100 g	2 day(s)	10 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M12 Voss Kveik	Ale	Slant	200 ml	Mangrove Jack's

## Extras

Type	Name	Amount	Use for	Time
Water Agent	kwask mlekowy	5.3 g	Mash	0 min
Water Agent	sól Epsom	0.5 g	Mash	0 min
Water Agent	CaCl <sub>2</sub>	7.5 g	Mash	0 min
Water Agent	Kwas mlekowy	4.2 g	Boil	0 min

## Notes

- zacieranie przy pH 5,3
  - sole do zacierania
  - przed zakwaszaniem zbicie pH do 4,2
  - zakwaszanie L. plantarum przez jakieś 12-18h (6 tabletek)
  - gotowanie z chmielem
  - chmiel na hopstand
  - fermentacja: 30-36°C
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