

# Markowe

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- Gravity **14.5 BLG**
- ABV **6 %**
- IBU **41**
- SRM **5.8**
- Style **Brown Porter**

## Batch size

- Expected quantity of finished beer **24 liter(s)**
- Trub loss **5 %**
- Size with trub loss **25.2 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **30.4 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **21 liter(s)**
- Total mash volume **28 liter(s)**

## Steps

- Temp **60 C**, Time **60 min**
- Temp **72 C**, Time **10 min**
- Temp **78 C**, Time **5 min**

## Mash step by step

- Heat up **21 liter(s)** of strike water to **66.7C**
- Add grains
- Keep mash **60 min** at **60C**
- Keep mash **10 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **16.4 liter(s)** of **76C** water or to achieve **30.4 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	6 kg (85.7%)	80 %	4
Grain	Strzegom karmel 30	1 kg (14.3%)	75 %	29.6

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Millennium	30 g	60 min	15.5 %
Aroma (end of boil)	Saaz (Czech Republic)	10 g	10 min	4.5 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Dry	20 g	Fermentis