

# roggen

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- Gravity **13.1 BLG**
- ABV **5.3 %**
- IBU **17**
- SRM **7**
- Style **Roggenbier**

## 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 **8 %/h**
- Boil size **24.4 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **4 liter(s) / kg**
- Mash size **20 liter(s)**
- Total mash volume **25 liter(s)**

## Steps

- Temp **44 C**, Time **20 min**
- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **1 min**

## Mash step by step

- Heat up **20 liter(s)** of strike water to **47C**
- Add grains
- Keep mash **20 min** at **44C**
- Keep mash **40 min** at **64C**
- Keep mash **20 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **9.4 liter(s)** of **76C** water or to achieve **24.4 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Weyermann - żytni	3 kg (60%)	85 %	7
Grain	monachijski Typ I Viking Malt	1 kg (20%)	78 %	18
Grain	Caramunich® typ I	0.25 kg (5%)	73 %	80
Grain	pilzneński lager Malteurop	0.75 kg (15%)	80 %	4

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Tradition	20 g	60 min	5.5 %
Boil	Tradition	15 g	15 min	5.5 %

## Yeasts

Name	Type	Form	Amount	Laboratory
FM41 Gwoździe i Banany	Wheat	Slant	200 ml	po warce 70