

# saj

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **32**
- SRM **31.7**
- Style **Dry Stout**

## Batch size

- Expected quantity of finished beer **10 liter(s)**
- Trub loss **5 %**
- Size with trub loss **10.5 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **12.7 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **2 liter(s) / kg**
- Mash size **5 liter(s)**
- Total mash volume **7.5 liter(s)**

## Steps

- Temp **66 C**, Time **50 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **10 min**

## Mash step by step

- Heat up **5 liter(s)** of strike water to **77.5C**
- Add grains
- Keep mash **50 min** at **66C**
- Keep mash **30 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **10.2 liter(s)** of **76C** water or to achieve **12.7 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	1.5 kg (60%)	80 %	5
Grain	Monachijski	0.3 kg (12%)	80 %	16
Grain	Strzegom Pszeniczny	0.3 kg (12%)	81 %	6
Grain	Strzegom Karmel 300	0.1 kg (4%)	70 %	299
Grain	Château Caffé	0.1 kg (4%)	70 %	500
Grain	Jęczmień palony	0.1 kg (4%)	55 %	985
Grain	Strzegom Czekoladowy ciemny	0.1 kg (4%)	68 %	1200

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Willamette	15 g	10 min	7.6 %
Aroma (end of boil)	Cascade PL	20 g	60 min	5.2 %

## Yeasts

Name	Type	Form	Amount	Laboratory
04	Ale	Dry	10 g	ds