

# MS21

- Gravity **16.8 BLG**
- ABV **7.1 %**
- IBU **38**
- SRM **38.8**
- Style **Sweet 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 **10 %/h**
- Boil size **25.3 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **20.1 liter(s)**
- Total mash volume **26.8 liter(s)**

## Steps

- Temp **68 C**, Time **60 min**
- Temp **76 C**, Time **10 min**

## Mash step by step

- Heat up **20.1 liter(s)** of strike water to **76C**
- Add grains
- Keep mash **60 min** at **68C**
- Keep mash **10 min** at **76C**
- Sparge using **11.9 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	4 kg (57.6%)	80 %	5
Grain	Słód pszeniczny Bestmalz	1 kg (14.4%)	82 %	15
Grain	chocolate castlemalting	0.5 kg (7.2%)	70 %	1000
Grain	Płatki owsiane	0.5 kg (7.2%)	60 %	3
Sugar	Milk Sugar (Lactose)	0.25 kg (3.6%)	76.1 %	0
Grain	Strzegom Karmel 30	0.5 kg (7.2%)	75 %	50
Grain	Extra black	0.2 kg (2.9%)	65 %	1400

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Magnum	50 g	20 min	13.5 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M15 Empire Ale	Ale	Dry	11.5 g	Mangrove Jack's