

## MS22

---

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **35**
- SRM **8.8**
- Style **American Pale Ale**

### 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 **90 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **12 liter(s)**
- Total mash volume **16 liter(s)**

### Steps

- Temp **63 C**, Time **40 min**
- Temp **73 C**, Time **30 min**
- Temp **78 C**, Time **5 min**

### Mash step by step

- Heat up **12 liter(s)** of strike water to **70.2C**
- Add grains
- Keep mash **40 min** at **63C**
- Keep mash **30 min** at **73C**
- Keep mash **5 min** at **78C**
- Sparge using **17.3 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	2.5 kg (75%)	80 %	5
Grain	Pszeniczny	1 kg (12.5%)	85 %	4
Grain	Strzegom Karmel 150	0.5 kg (12.5%)	75 %	150

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Centennial	30 g	60 min	10.5 %
Boil	Ahtanum	20 g	30 min	5 %
Aroma (end of boil)	Centennial	20 g	1 min	10.5 %
Aroma (end of boil)	Ahtanum	30 g	1 min	5 %
Dry Hop	Centennial	50 g	3 day(s)	10.5 %
Dry Hop	Ahtanum	70 g	3 day(s)	5 %

### Yeasts

Name	Type	Form	Amount	Laboratory
------	------	------	--------	------------

Mangrove Jack's M42 New World Strong Ale	Ale	Dry	11.5 g	Mangrove Jack's
--	-----	-----	--------	-----------------