

## NE APA - Michigan Copper

- Gravity **12.4 BLG**
- ABV **5 %**
- IBU **20**
- SRM **3.7**
- Style **American Pale Ale**

### Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **4 %**
- Size with trub loss **13 liter(s)**
- Boil time **70 min**
- Evaporation rate **15 %/h**
- Boil size **15.6 liter(s)**

### Mash information

- Mash efficiency **78 %**
- Liquor-to-grist ratio **3.6 liter(s) / kg**
- Mash size **9.9 liter(s)**
- Total mash volume **12.7 liter(s)**

### Steps

- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **40 min**
- Temp **76 C**, Time **10 min**

### Mash step by step

- Heat up **9.9 liter(s)** of strike water to **70.1C**
- Add grains
- Keep mash **40 min** at **64C**
- Keep mash **40 min** at **72C**
- Keep mash **10 min** at **76C**
- Sparge using **8.5 liter(s)** of **76C** water or to achieve **15.6 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	1 kg (36.4%)	80 %	4
Grain	Viking Pale Ale malt	0.7 kg (25.5%)	80 %	5
Grain	Strzegom Pszeniczny	0.5 kg (18.2%)	81 %	6
Grain	Oats, Flaked	0.5 kg (18.2%)	80 %	2
Grain	Acid Malt	0.05 kg (1.8%)	58.7 %	6

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Michigan Copper	20 g	15 min	10.5 %
Aroma (end of boil)	Michigan Copper	20 g	0 min	10.5 %
Dry Hop	Michigan Copper	60 g	5 day(s)	10.5 %

### Yeasts

Name	Type	Form	Amount	Laboratory
Lallemand - LalBrew Verdant IPA	Ale	Dry	5 g	Lallemand

### Extras

Type	Name	Amount	Use for	Time
Water Agent	gips piwowarski	2 g	Boil	60 min
Other	Witamina C	2 g	Bottling	---