

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 | --- |