

# APA single hop

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **39**
- SRM **4.6**
- Style **American Pale Ale**

## Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **26.4 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15 liter(s)**
- Total mash volume **20 liter(s)**

## Steps

- Temp **64 C**, Time **60 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **1 min**

## Mash step by step

- Heat up **15 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **60 min** at **64C**
- Keep mash **15 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **16.4 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

## Fermentables

| Type  | Name        | Amount     | Yield | EBC |
|-------|-------------|------------|-------|-----|
| Grain | Pilzneński  | 4 kg (80%) | 81 %  | 4   |
| Grain | Monachijski | 1 kg (20%) | 80 %  | 16  |

## Hops

| Use for | Name                   | Amount | Time     | Alpha acid |
|---------|------------------------|--------|----------|------------|
| Boil    | Columbus/Tomahawk/Zeus | 20 g   | 60 min   | 15.5 %     |
| Boil    | Columbus/Tomahawk/Zeus | 19 g   | 5 min    | 15.5 %     |
| Dry Hop | Columbus/Tomahawk/Zeus | 61 g   | 5 day(s) | 15.5 %     |

## Yeasts

| Name         | Type | Form  | Amount | Laboratory |
|--------------|------|-------|--------|------------|
| Safale US-05 | Ale  | Slant | 100 ml | własne     |

## Extras

| Type   | Name                  | Amount | Use for   | Time     |
|--------|-----------------------|--------|-----------|----------|
| Flavor | otarta skórka cytryny | 20 g   | Secondary | 5 day(s) |