

## APA single hop

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- 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)