

APA (Columbus+Cascade) - po mojemu

- Gravity **11.2 BLG**
- ABV **4.5 %**
- IBU **28**
- SRM **4.4**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **26.5 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **14.1 liter(s)**
- Total mash volume **18.8 liter(s)**

Steps

- Temp **66 C**, Time **90 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **14.1 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **90 min** at **66C**
- Keep mash **10 min** at **78C**
- Sparge using **17.1 liter(s)** of **76C** water or to achieve **26.5 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------|----------------|-------|-----|
| Grain | Viking Pale Ale malt | 3.5 kg (74.5%) | 80 % | 5 |
| Grain | Viking Vienna Malt | 1 kg (21.3%) | 79 % | 7 |
| Grain | Karmelowy Jasny 30EBC | 0.2 kg (4.3%) | 75 % | 30 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|------------------------|--------|--------|------------|
| Boil | Columbus/Tomahawk/Zeus | 12 g | 60 min | 15.5 % |
| Boil | Cascade | 15 g | 15 min | 6 % |
| Boil | Cascade | 20 g | 5 min | 6 % |
| Boil | Cascade | 25 g | 0 min | 6 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-----------------------|------|------|--------|------------|
| Danstar - Windsor Ale | Ale | Dry | 11 g | Danstar |