

s/m apa II

- Gravity **11 BLG**
- ABV **4.4 %**
- IBU **76**
- SRM **6**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **25.5 liter(s)**
- Trub loss **5 %**
- Size with trub loss **28.6 liter(s)**
- Boil time **60 min**
- Evaporation rate **18 %/h**
- Boil size **36.7 liter(s)**

Mash information

- Mash efficiency **85 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15 liter(s)**
- Total mash volume **20 liter(s)**

Steps

- Temp **68 C**, Time **30 min**
- Temp **72 C**, Time **30 min**
- Temp **76 C**, Time **10 min**

Mash step by step

- Heat up **15 liter(s)** of strike water to **76C**
- Add grains
- Keep mash **30 min** at **68C**
- Keep mash **30 min** at **72C**
- Keep mash **10 min** at **76C**
- Sparge using **26.7 liter(s)** of **76C** water or to achieve **36.7 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|--|-------------|--------|-----|
| Grain | Weyermann - Pale Ale Malt | 3 kg (60%) | 85 % | 7 |
| Grain | Monachijski typ II 20-25 EBC Weyermann | 1 kg (20%) | 80 % | 20 |
| Grain | Płatki jęczmienne | 0.4 kg (8%) | 85 % | 3 |
| Grain | Rye, Flaked | 0.4 kg (8%) | 78.3 % | 4 |
| Grain | Słód Caramunich Typ II Weyermann | 0.2 kg (4%) | 73 % | 120 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|----------------------|------------------------|--------|--------|------------|
| Boil | Columbus/Tomahawk/Zeus | 50 g | 30 min | 17.5 % |
| Boil | Simcoe | 25 g | 10 min | 13.3 % |
| Boil | Amarillo | 25 g | 10 min | 7.4 % |
| Aroma (end of boil) | Simcoe | 25 g | 1 min | 13.3 % |
| Aroma (end of boil) | Amarillo | 25 g | 1 min | 7.4 % |
| Whirlpool | Simcoe | 50 g | 0 min | 13.3 % |
| whirlpool 80°C 20min | | | | |

| | | | | |
|-----------|------------|-------|----------|--------|
| Whirlpool | Amarillo | 50 g | 0 min | 7.4 % |
| Whirlpool | Centennial | 50 g | 0 min | 10.5 % |
| Dry Hop | Amarillo | 100 g | 3 day(s) | 7.4 % |
| Dry Hop | Simcoe | 100 g | 3 day(s) | 13.3 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-------------|------|------|--------|------------|
| Safale S-04 | Ale | Dry | 11 g | Safale |

Extras

| Type | Name | Amount | Use for | Time |
|-------------|----------------|--------|---------|--------|
| Water Agent | chlerek wapnia | 5 g | Mash | 60 min |
| Flavor | skórka cytryny | 25 g | Boil | 10 min |