

Toporek

- Gravity **13.3 BLG**
- ABV **5.5 %**
- IBU **32**
- 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 **3.5 liter(s) / kg**
- Mash size **19.3 liter(s)**
- Total mash volume **24.8 liter(s)**

Steps

- Temp **68 C**, Time **60 min**
- Temp **77 C**, Time **5 min**

Mash step by step

- Heat up **19.3 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **60 min** at **68C**
- Keep mash **5 min** at **77C**
- Sparge using **12.6 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|----------------------|----------------|-------|-----|
| Grain | Viking Pilsner malt | 2.5 kg (45.5%) | 82 % | 4 |
| Grain | Viking Pale Ale malt | 2.5 kg (45.5%) | 80 % | 5 |
| Grain | Viking Munich Malt | 0.5 kg (9.1%) | 78 % | 18 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|------------------------|--------|----------|------------|
| Boil | Columbus/Tomahawk/Zeus | 5 g | 60 min | 15.5 % |
| Boil | Columbus/Tomahawk/Zeus | 15 g | 20 min | 15.5 % |
| Boil | Columbus/Tomahawk/Zeus | 30 g | 5 min | 15.5 % |
| Dry Hop | Columbus/Tomahawk/Zeus | 50 g | 3 day(s) | 15.5 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|--------------|------|------|--------|------------|
| Safale US-05 | Ale | Dry | 11.5 g | Fermentis |