

## Koniec roku

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- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **45**
- SRM **4.2**
- Style **American Pale Ale**

### Batch size

- Expected quantity of finished beer **42 liter(s)**
- Trub loss **5 %**
- Size with trub loss **44.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **53.1 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **28.1 liter(s)**
- Total mash volume **37.5 liter(s)**

### Steps

- Temp **55 C**, Time **25 min**
- Temp **64 C**, Time **30 min**
- Temp **68 C**, Time **30 min**
- Temp **72 C**, Time **10 min**

### Mash step by step

- Heat up **28.1 liter(s)** of strike water to **60.8C**
- Add grains
- Keep mash **25 min** at **55C**
- Keep mash **30 min** at **64C**
- Keep mash **30 min** at **68C**
- Keep mash **10 min** at **72C**
- Sparge using **34.4 liter(s)** of **76C** water or to achieve **53.1 liter(s)** of wort

### Fermentables

| Type  | Name                 | Amount          | Yield | EBC |
|-------|----------------------|-----------------|-------|-----|
| Grain | Viking Munich Malt   | 0.822 kg (8.8%) | 78 %  | 18  |
| Grain | Viking Pale Ale malt | 7.688 kg (82%)  | 80 %  | 5   |
| Grain | Pszeniczny           | 0.86 kg (9.2%)  | 85 %  | 4   |

### Hops

| Use for             | Name    | Amount | Time   | Alpha acid |
|---------------------|---------|--------|--------|------------|
| Boil                | Chinook | 50 g   | 60 min | 13 %       |
| Boil                | Equinox | 25 g   | 10 min | 13.1 %     |
| Aroma (end of boil) | Equinox | 25 g   | 5 min  | 13.1 %     |
| Whirlpool           | Mosaic  | 40 g   | ---    | 10 %       |

### Yeasts

| Name         | Type | Form | Amount | Laboratory |
|--------------|------|------|--------|------------|
| Safale US-05 | Ale  | Dry  | 23 g   | Fermentis  |