

## double

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- Gravity **19.1 BLG**
- ABV **8.3 %**
- IBU **96**
- SRM **8.6**

### Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **25.3 liter(s)**
- Boil time **60 min**
- Evaporation rate **12 %/h**
- Boil size **30.9 liter(s)**

### Mash information

- Mash efficiency **82 %**
- Liquor-to-grist ratio **3.3 liter(s) / kg**
- Mash size **28 liter(s)**
- Total mash volume **36.5 liter(s)**

### Steps

- Temp **63 C**, Time **60 min**

### Mash step by step

- Heat up **28 liter(s)** of strike water to **69.5C**
- Add grains
- Keep mash **60 min** at **63C**
- Sparge using **11.4 liter(s)** of **76C** water or to achieve **30.9 liter(s)** of wort

### Fermentables

| Type  | Name                 | Amount         | Yield | EBC |
|-------|----------------------|----------------|-------|-----|
| Grain | Viking Pale Ale malt | 7.5 kg (88.2%) | 80 %  | 5   |
| Grain | Strzegom Karmel 300  | 0.2 kg (2.4%)  | 70 %  | 299 |
| Grain | Weyermann - Carapils | 0.3 kg (3.5%)  | 78 %  | 4   |
| Grain | Pszeniczny           | 0.5 kg (5.9%)  | 85 %  | 4   |

### Hops

| Use for             | Name                   | Amount | Time   | Alpha acid |
|---------------------|------------------------|--------|--------|------------|
| Boil                | Columbus/Tomahawk/Zeus | 70 g   | 60 min | 12.6 %     |
| Boil                | ekuanot                | 15 g   | 30 min | 13.6 %     |
| Boil                | Challenger             | 15 g   | 30 min | 7 %        |
| Boil                | Simcoe                 | 20 g   | 20 min | 13.2 %     |
| Boil                | Centennial             | 20 g   | 10 min | 10.5 %     |
| Aroma (end of boil) | Citra                  | 25 g   | 0 min  | 12 %       |
| Aroma (end of boil) | Galaxy                 | 25 g   | 0 min  | 15 %       |