

## 19# po ris-owy stout

- Gravity **13.1 BLG**
- ABV **5.3 %**
- IBU **33**
- SRM **24.5**

### Batch size

- Expected quantity of finished beer **18 liter(s)**
- Trub loss **5 %**
- Size with trub loss **19.8 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **23.8 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **7.2 liter(s)**
- Total mash volume **9.6 liter(s)**

### Steps

- Temp **68 C**, Time **80 min**
- Temp **70 C**, Time **10 min**

### Mash step by step

- Heat up **7.2 liter(s)** of strike water to **76C**
- Add grains
- Keep mash **80 min** at **68C**
- Keep mash **10 min** at **70C**
- Sparge using **19 liter(s)** of **76C** water or to achieve **23.8 liter(s)** of wort

### Fermentables

| Type           | Name                       | Amount         | Yield | EBC |
|----------------|----------------------------|----------------|-------|-----|
| Liquid Extract | WES ekstrakt słodowy jasny | 1.7 kg (41.5%) | 80 %  | 25  |
| Grain          | wysłodziny po 18#ris       | 2.4 kg (58.5%) | 80 %  | 150 |

### Hops

| Use for             | Name       | Amount | Time     | Alpha acid |
|---------------------|------------|--------|----------|------------|
| Boil                | Puławski   | 10 g   | 60 min   | 8.9 %      |
| Boil                | Warrior    | 5 g    | 60 min   | 15.5 %     |
| Boil                | Cascade PL | 20 g   | 30 min   | 5.2 %      |
| Boil                | Cascade    | 15 g   | 15 min   | 6 %        |
| Aroma (end of boil) | ekuanot    | 25 g   | 0 min    | 14 %       |
| Aroma (end of boil) | Cascade    | 25 g   | 0 min    | 6 %        |
| Dry Hop             | ekuanot    | 25 g   | 3 day(s) | 14 %       |
| Dry Hop             | Cascade    | 25 g   | ---      | 6 %        |

### Yeasts

| Name         | Type | Form | Amount | Laboratory |
|--------------|------|------|--------|------------|
| Safale US-05 | Ale  | Dry  | 11 g   | Fermentis  |

## Notes

- Wysłodzone 21 litrów brzezki po 18#Ris o ekstrakcie 7,1blg, dodano ekstrakt słodowy. Po 60min. gotowania uzyskano 18l o ekstrakcie 12,9blg  
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