

Full Aroma Hops BRUNO

- Gravity **11.9 BLG**
- ABV ---
- IBU **49**
- SRM **3.8**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **25.3 liter(s)**

Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **14 liter(s)**
- Total mash volume **18 liter(s)**

Steps

- Temp **40 C**, Time **1 min**
- Temp **62 C**, Time **10 min**
- Temp **72 C**, Time **45 min**
- Temp **76 C**, Time **10 min**

Mash step by step

- Heat up **14 liter(s)** of strike water to **42.9C**
- Add grains
- Keep mash **1 min** at **40C**
- Keep mash **10 min** at **62C**
- Keep mash **45 min** at **72C**
- Keep mash **10 min** at **76C**
- Sparge using **15.3 liter(s)** of **76C** water or to achieve **25.3 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|------------|-------------|-------|-----|
| Grain | Pilzneński | 4 kg (100%) | 81 % | 4 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|-----------------------|--------|----------|------------|
| Boil | Magnum | 10 g | 90 min | 13.5 % |
| Boil | Perle | 10 g | 60 min | 7 % |
| Boil | Tradition | 10 g | 45 min | 5.5 % |
| Boil | Saaz (Czech Republic) | 10 g | 30 min | 4.5 % |
| Boil | Perle | 15 g | 20 min | 7 % |
| Boil | Saaz (Czech Republic) | 20 g | 10 min | 4.5 % |
| Dry Hop | Perle | 25 g | 7 day(s) | 7 % |
| Dry Hop | Saaz (Czech Republic) | 25 g | 7 day(s) | 4.5 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|------|------|------|--------|------------|
|------|------|------|--------|------------|

| | | | | |
|-------------|-----|-----|------|--------|
| Safale S-04 | Ale | Dry | 11 g | Safale |
|-------------|-----|-----|------|--------|