

ABRA

- Gravity **13.6 BLG**
- ABV ---
- IBU **77**
- SRM **39.7**

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 **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **15 liter(s)**
- Total mash volume **20 liter(s)**

Steps

- Temp **52 C**, Time **10 min**
- Temp **62 C**, Time **40 min**
- Temp **72 C**, Time **30 min**
- Temp **76 C**, Time **10 min**

Mash step by step

- Heat up **15 liter(s)** of strike water to **57.3C**
- Add grains
- Keep mash **10 min** at **52C**
- Keep mash **40 min** at **62C**
- Keep mash **30 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 | Strzegom Pale Ale | 1.5 kg (30%) | 79 % | 6 |
| Grain | Strzegom Pilzneński | 1.5 kg (30%) | 80 % | 4 |
| Grain | Karmelowy Czerwony | 0.6 kg (12%) | 75 % | 59 |
| Grain | Żytni | 1 kg (20%) | 85 % | 8 |
| Grain | Strzegom Czekoladowy ciemny | 0.2 kg (4%) | 68 % | 1200 |
| Grain | Jęczmień palony | 0.2 kg (4%) | 55 % | 985 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|------------------------|--------|----------|------------|
| Boil | Columbus/Tomahawk/Zeus | 30 g | 60 min | 15.3 % |
| Aroma (end of boil) | Columbus/Tomahawk/Zeus | 20 g | 10 min | 15.5 % |
| Aroma (end of boil) | Citra | 20 g | 10 min | 12 % |
| Dry Hop | Citra | 30 g | 7 day(s) | 12 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-------------|-------------|-------------|---------------|-------------------|
| Safale S-04 | Ale | Dry | 11 g | Safale |

Extras

| Type | Name | Amount | Use for | Time |
|-------------|-------------|---------------|----------------|-------------|
| Fining | Irish Moss | 5 g | Boil | 15 min |