

Tragarz

- Gravity **12.4 BLG**
- ABV **5 %**
- IBU **28**
- SRM **15.3**
- Style **Brown Porter**

Batch size

- Expected quantity of finished beer **25 liter(s)**
- Trub loss **5 %**
- Size with trub loss **26.3 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **31.6 liter(s)**

Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **19.6 liter(s)**
- Total mash volume **25.2 liter(s)**

Steps

- Temp **67 C**, Time **45 min**
- Temp **72 C**, Time **15 min**
- Temp **78 C**, Time **1 min**

Mash step by step

- Heat up **19.6 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **45 min** at **67C**
- Keep mash **15 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **17.6 liter(s)** of **76C** water or to achieve **31.6 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|----------------|-------|------|
| Grain | Strzegom Pale Ale | 4 kg (71.4%) | 79 % | 6 |
| Grain | Strzegom Monachijski typ I | 1 kg (17.9%) | 79 % | 16 |
| Grain | Bestmaltz Caramelpils | 0.25 kg (4.5%) | 78 % | 30 |
| Grain | Strzegom Karmel 300 | 0.25 kg (4.5%) | 70 % | 300 |
| Grain | Strzegom Czekoladowy ciemny | 0.1 kg (1.8%) | 68 % | 1300 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|---------|--------|--------|------------|
| Boil | Marynka | 25 g | 60 min | 8.7 % |
| Boil | Marynka | 5 g | 30 min | 8.7 % |
| Aroma (end of boil) | Fuggles | 30 g | 10 min | 4.5 % |
| Aroma (end of boil) | Marynka | 40 g | 0 min | 8.7 % |

Yeasts

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

| | | | | |
|--------------|-----|-----|------|-----|
| Safale US-05 | Ale | Dry | 11 g | --- |
|--------------|-----|-----|------|-----|