

Altbier

- Gravity **12.1 BLG**
- ABV **4.9 %**
- IBU **43**
- SRM **11.3**
- Style **Düsseldorf Altbier**

Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **11 %/h**
- Boil size **26.8 liter(s)**

Mash information

- Mash efficiency **95 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **14.2 liter(s)**
- Total mash volume **18.2 liter(s)**

Steps

- Temp **51 C**, Time **10 min**
- Temp **64 C**, Time **30 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **1 min**

Mash step by step

- Heat up **14.2 liter(s)** of strike water to **55.4C**
- Add grains
- Keep mash **10 min** at **51C**
- Keep mash **30 min** at **64C**
- Keep mash **30 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **16.7 liter(s)** of **76C** water or to achieve **26.8 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|-----------------------------|----------------|-------|-----|
| Grain | Strzegom Monachijski typ II | 3 kg (74.1%) | 79 % | 22 |
| Grain | MEP@Lager | 0.6 kg (14.8%) | 82 % | 6 |
| Grain | Strzegom Karmel 150 | 0.25 kg (6.2%) | 75 % | 150 |
| Grain | Strzegom Karmel 30 | 0.15 kg (3.7%) | 75 % | 30 |
| Grain | Strzegom Karmel 600 | 0.05 kg (1.2%) | 68 % | 601 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|-----------------|--------|--------|------------|
| Boil | Tradition | 20 g | 60 min | 7 % |
| Boil | Perle | 30 g | 30 min | 7 % |
| Boil | Hallertau Blanc | 20 g | 15 min | 10 % |

Yeasts

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

| | | | | |
|----------------------------------|-----|-------|--------|------------|
| WLP029 - German Ale/Kölsch Yeast | Ale | Slant | 200 ml | White Labs |
|----------------------------------|-----|-------|--------|------------|