

alt

- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **22**
- SRM **7.9**
- Style **Düsseldorf Altbier**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **25.7 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **16.8 liter(s)**
- Total mash volume **21.6 liter(s)**

Steps

- Temp **50 C**, Time **20 min**
- Temp **64 C**, Time **30 min**
- Temp **70 C**, Time **30 min**
- Temp **77 C**, Time **5 min**

Mash step by step

- Heat up **16.8 liter(s)** of strike water to **54.3C**
- Add grains
- Keep mash **20 min** at **50C**
- Keep mash **30 min** at **64C**
- Keep mash **30 min** at **70C**
- Keep mash **5 min** at **77C**
- Sparge using **13.7 liter(s)** of **76C** water or to achieve **25.7 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Monachijski typ I weyermann	4.3 kg (89.6%)	79 %	16
Grain	Monachijski	0.5 kg (10.4%)	80 %	16

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Liberty	40 g	60 min	4.5 %
Aroma (end of boil)	Liberty	20 g	5 min	4.5 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safbrew S-33	Wheat	Dry	11.5 g	---