

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
----------------------------------	-----	-------	--------	------------