

Dunkiel

- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **29**
- SRM **7.2**
- Style **Munich Dunkel**

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 **10 %/h**
- Boil size **26.5 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **4.7 liter(s) / kg**
- Mash size **23.5 liter(s)**
- Total mash volume **28.5 liter(s)**

Steps

- Temp **62 C**, Time **20 min**
- Temp **64 C**, Time **25 min**
- Temp **74 C**, Time **20 min**
- Temp **78 C**, Time **5 min**

Mash step by step

- Heat up **23.5 liter(s)** of strike water to **66.5C**
- Add grains
- Keep mash **20 min** at **62C**
- Keep mash **25 min** at **64C**
- Keep mash **20 min** at **74C**
- Keep mash **5 min** at **78C**
- Sparge using **8 liter(s)** of **76C** water or to achieve **26.5 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Monachijski	4.5 kg (90%)	80 %	15
Grain	Strzegom Pilzneński	0.5 kg (10%)	80 %	4

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Marynka	50 g	20 min	8.8 %

Yeasts

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