

# TTC Cold German Pale Ale

- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **27**
- SRM **3.3**
- Style **German Pilsner (Pils)**

## Batch size

- Expected quantity of finished beer **24 liter(s)**
- Trub loss **5 %**
- Size with trub loss **25.2 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **30.4 liter(s)**

## Mash information

- Mash efficiency **85 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **17.5 liter(s)**
- Total mash volume **22.5 liter(s)**

## Steps

- Temp **66 C**, Time **60 min**
- Temp **78 C**, Time **5 min**

## Mash step by step

- Heat up **17.5 liter(s)** of strike water to **72.6C**
- Add grains
- Keep mash **60 min** at **66C**
- Keep mash **5 min** at **78C**
- Sparge using **17.9 liter(s)** of **76C** water or to achieve **30.4 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	5 kg (100%)	80 %	4

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Opal (DE)!	10 g	60 min	8.4 %
Boil	Opal (DE)!	15 g	20 min	8.4 %
Boil	Polaris (DE)	10 g	20 min	20.8 %
Aroma (end of boil)	Opal (DE)!	30 g	0 min	8.4 %
Aroma (end of boil)	Polaris (DE)	30 g	0 min	20.8 %
Dry Hop	Opal (DE)!	20 g	3 day(s)	8.4 %
Dry Hop	Polaris (DE)	45 g	3 day(s)	20.8 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Slant	500 ml	Fermentis

## Notes

- Fermentacja 16°C ~dwa tygodnie, chmienie na zimno opcjonalne  
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