

## #224 Niemiecki pils

- Gravity **11.9 BLG**
- ABV **4.8 %**
- IBU **25**
- SRM **3.4**
- Style **German Pilsner (Pils)**

### Batch size

- Expected quantity of finished beer **22.6 liter(s)**
- Trub loss **6 %**
- Size with trub loss **24 liter(s)**
- Boil time **60 min**
- Evaporation rate **6 %/h**
- Boil size **25.9 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **2.98 liter(s) / kg**
- Mash size **14 liter(s)**
- Total mash volume **18.7 liter(s)**

### Steps

- Temp **52 C**, Time **5 min**
- Temp **64 C**, Time **30 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **1 min**

### Mash step by step

- Heat up **14 liter(s)** of strike water to **57.4C**
- Add grains
- Keep mash **5 min** at **52C**
- Keep mash **30 min** at **64C**
- Keep mash **20 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **16.6 liter(s)** of **76C** water or to achieve **25.9 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	VM pilzneński	4.1 kg (87.2%)	81 %	4
Grain	Weyermann Carapils	0.45 kg (9.6%)	80 %	4.5
Grain	Weyermann zakwaszający	0.15 kg (3.2%)	78 %	3.5

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Tradition PL 2023	30 g	60 min	6 %
Aroma (end of boil)	Tettnanger DE 2023	50 g	10 min	3.2 %

### Yeasts

Name	Type	Form	Amount	Laboratory
FM50 Kłosy Kansas	Ale	Liquid	40 ml	Fermentum Mobile