

ful aroma hops cobra

- Gravity **12.6 BLG**
- ABV **5.1 %**
- IBU **55**
- SRM **4**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **22 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **26.4 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **19.3 liter(s)**
- Total mash volume **24.8 liter(s)**

Steps

- Temp **40 C**, Time **0 min**
- Temp **61 C**, Time **15 min**
- Temp **71 C**, Time **45 min**

Mash step by step

- Heat up **19.3 liter(s)** of strike water to **42.8C**
- Add grains
- Keep mash **0 min** at **40C**
- Keep mash **15 min** at **61C**
- Keep mash **45 min** at **71C**
- Sparge using **12.6 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Pilzneński	4.9 kg (89.1%)	81 %	4
Grain	Weyermann - Pale Ale Malt	0.6 kg (10.9%)	85 %	7

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	lunga	30 g	90 min	11 %
Boil	Puławski	40 g	45 min	4.3 %
Aroma (end of boil)	Lublin (Lubelski)	13 g	5 min	4 %
Dry Hop	Lublin (Lubelski)	13 g	3 day(s)	4 %

Yeasts

Name	Type	Form	Amount	Laboratory
us-05	Ale	Dry	11.5 g	saflager