

Bitter

- Gravity **10.2 BLG**
- ABV **4.1 %**
- IBU **20**
- SRM **5.4**
- Style **Extra Special/Strong Bitter (English Pale Ale)**

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 **3 liter(s) / kg**
- Mash size **12.8 liter(s)**
- Total mash volume **17 liter(s)**

Steps

- Temp **72 C**, Time **90 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **12.8 liter(s)** of strike water to **80.6C**
- Add grains
- Keep mash **90 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **18 liter(s)** of **76C** water or to achieve **26.5 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	3 kg (70.6%)	80 %	5
Grain	Viking Munich Malt	1 kg (23.5%)	78 %	18
Grain	Biscuit Malt	0.25 kg (5.9%)	79 %	45

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	East Kent Goldings	30 g	60 min	5.1 %
Boil	East Kent Goldings	20 g	5 min	5.1 %

Yeasts

Name	Type	Form	Amount	Laboratory
Danstar - Windsor Ale	Ale	Dry	11 g	Danstar