

# Bitter

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- 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    |