#45 Robust Porter

- Gravity **13.6 BLG**
- ABV **5.6 %**
- IBU **34**
- SRM **30.9**
- Style **Robust Porter**

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 **65 %**
- Liquor-to-grist ratio **3.3 liter(s) / kg**
- Mash size **22.1 liter(s)**
- Total mash volume **28.8 liter(s)**

Steps

- Temp **67 C**, Time **45 min**
- Temp **72 C**, Time **15 min**
- Temp **80 C**, Time **5 min**

Mash step by step

- Heat up **22.1 liter(s)** of strike water to **74.1C**
- Add grains
- Keep mash **45 min** at **67C**
- Keep mash **15 min** at **72C**
- Keep mash **5 min** at **80C**
- Sparge using **11 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	5.5 kg *(82.1%)*	80 %	5
Grain	Strzegom Karmel 150	0.3 kg *(4.5%)*	75 %	150
Grain	Weyermann Specjal W	0.3 kg *(4.5%)*	68 %	300
Grain	Fawcett - Pale Chocolate	0.2 kg *(3%)*	71 %	600
Grain	Weyermann - Carafa I	0.2 kg *(3%)*	70 %	690
Grain	Weyermann - Dehusked Carafa III	0.2 kg *(3%)*	70 %	1024

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Warrior	5 g	60 min	15.5 %
Boil	Warrior	10 g	45 min	15.5 %
Boil	Warrior	10 g	30 min	15.5 %

Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M44 US West Coast	Ale	Slant	200 ml	Mangrove Jack's