

- Gravity **13.1 BLG**
- ABV **5.3 %**
- IBU **33**
- SRM **4.7**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **18.3 liter(s)**
- Trub loss **5 %**
- Size with trub loss **19.6 liter(s)**
- Boil time **80 min**
- Evaporation rate **21 %/h**
- Boil size **25.5 liter(s)**

Mash information

- Mash efficiency **82.6 %**
- Liquor-to-grist ratio **3.65 liter(s) / kg**
- Mash size **15 liter(s)**
- Total mash volume **19.1 liter(s)**

Steps

- Temp **65 C**, Time **60 min**
- Temp **72 C**, Time **20 min**
- Temp **77 C**, Time **7 min**

Mash step by step

- Heat up **15 liter(s)** of strike water to **71.2C**
- Add grains
- Keep mash **60 min** at **65C**
- Keep mash **20 min** at **72C**
- Keep mash **7 min** at **77C**
- Sparge using **14.6 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	pilzneński - viking	2 kg (48.8%)	80 %	3.6
Grain	pale ale - viking	1.1 kg (26.8%)	80 %	5.5
Grain	pszeniczny - bestmalz	0.3 kg (7.3%)	83 %	5
Grain	wiedeński - viking	0.4 kg (9.8%)	78 %	9
Grain	karmelowy 30 - viking	0.3 kg (7.3%)	73 %	30

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Warrior	9 g	60 min	14.7 %
Aroma (end of boil)	Columbus	20 g	5 min	15.8 %
Aroma (end of boil)	Simcoe	20 g	5 min	12.9 %
Aroma (end of boil)	Falconer's Flight	50 g	1 min	10.3 %
Dry Hop	Falconer's Flight	50 g	1 day(s)	10.3 %
Dry Hop	Hallertau Blanc	30 g	1 day(s)	5.3 %

Yeasts

Name	Type	Form	Amount	Laboratory
FM52 Amerykański Sen	Ale	Slant	150 ml	Fermentum Mobile
gęstwa 30-dniowa				

Extras

Type	Name	Amount	Use for	Time
Water Agent	Gips	2.5 g	Mash	---
Water Agent	kwask mlekowy 80% [ml]	4.65 g	Mash	---
Water Agent	chlorek wapnia [ml]	0 g	Mash	---
Water Agent	węglan wapnia/kreda	0 g	Mash	---
Water Agent	sól epsom	0.5 g	Mash	---
Fining	irish moss	3 g	Boil	10 min
zastanowić się czy dodawać?				
Water Agent	kwask askorbinowy	3.6 g	Bottling	---