

- Gravity **13.1 BLG**
- ABV **5.3 %**
- IBU **30**
- SRM **4.6**
- Style **American Pale Ale**

Batch size

- Expected quantity of finished beer **19.3 liter(s)**
- Trub loss **5 %**
- Size with trub loss **20.7 liter(s)**
- Boil time **70 min**
- Evaporation rate **21 %/h**
- Boil size **26 liter(s)**

Mash information

- Mash efficiency **85.2 %**
- Liquor-to-grist ratio **3.58 liter(s) / kg**
- Mash size **15 liter(s)**
- Total mash volume **19.2 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 **71.3C**
- Add grains
- Keep mash **60 min** at **65C**
- Keep mash **20 min** at **72C**
- Keep mash **7 min** at **77C**
- Sparge using **15.2 liter(s)** of **76C** water or to achieve **26 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	pilzneński - viking	3.1 kg (73.8%)	80 %	3.6
Grain	pszeniczny - bestmalz	0.3 kg (7.1%)	83 %	5
Grain	wiedeński - viking	0.4 kg (9.5%)	78 %	9
Grain	karmelowy 30 - viking	0.4 kg (9.5%)	73 %	30

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Warrior	10 g	60 min	14.7 %
Aroma (end of boil)	CTZ	20 g	5 min	10.7 %
Aroma (end of boil)	Centennial	12.5 g	5 min	10.5 %
Aroma (end of boil)	Moutere	50 g	1 min	15.9 %
Dry Hop	Moutere	40 g	1 day(s)	15.9 %
Dry Hop	Hallertau Blanc	40 g	1 day(s)	5.3 %

Yeasts

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

Extras

Type	Name	Amount	Use for	Time
Water Agent	Gips	3 g	Mash	---
Water Agent	kwas mlekowy 80% [ml]	4.71 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	kwas askorbinowy	3.6 g	Bottling	---